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# JOURNAL OF INDIAN E D U C A T I O N

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TO OUR CONTRIBUTORS

*JIE invites articles/papers on the impact of educational research on classroom practices and policy decisions. Specific examples where this impact is apparent may be given.*

GENERAL EDITOR

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# Motivation and Learning Revisited

ELDER U.I. ANWANA

*Department of Educational Foundations, University of Cross River State, UYO, Akwa Ibom State, Nigeria*

**T**HE psychology of motivation focuses primarily on the variables that activate and direct behaviour. Behaviour is goal-oriented, that is, it is motivated towards or away from certain events. Behaviour is characterised by a motivational sequence: a certain drive which activates and directs behaviour is followed by an instrumental response which leads to an incentive which, in turn, reduces or eliminates the drive. How such drives develop and influence behaviour; the learning; certain factors in motivation, relationship between motivation and achievement. These are some of the issues we shall discuss in this paper.

## **Significance of Motivation**

Motivation seems to be present and quite significant in every sphere of human endeavour.

in living, rearing children, selling goods, advertising and propaganda, courtship and marriage. Motivation draws upon the whole field of psychology and human contacts. The psychology of motivation is fast developing and is approaching the status of a separate discipline with its own peculiar methods, principles and techniques. In this paper, however, the major thrust will be on how motivation relates to educational activities, the principles and techniques which can be utilized in an efficient programme in formal education. It may be stated that the degree to which an individual aspires in learning depends on the motives that impel him to action. It is only in very rare and exceptional cases that individuals who lack motivation learn effectively. Learning is a process that is continually modifying the behaviour patterns of the individual. Therefore,

the extent to which an individual affects changes in his behaviour is often related directly to the intensity of his desire to do so, though negative motivation in some instances may cause the learner to modify behaviour against his will (Stiles and Dorsey, 1950).

Motivation gives that strong urge which makes an individual wish to take part in the learning activity. Without some type of motive or urge, learning experiences are bound to be artificial, uninteresting, virtually meaningless and therefore ineffective

### Definitions and Use of Motivation

Motivation is defined as the process of creating a desire to act. It involves the development of an incentive that will serve to stimulate interest in a desired action. In education, motivation is the art of stimulating interest in the student, where there is no such interest or where it is yet to be felt by the student concerned. It also involves cultivating the interest already present, on behalf of the stated curriculum (Thomson, M.K., 1945). The tendency to use this term to cover every factor of human action should be checked. The words that most accurately describe the situation at hand should be used. For instance, words like attitude, set, bias, readiness, urge, drive, appetite, impulse, craving, want, desire, incentive, wish, aim, interest, intention, purpose, will, longing, determination, and so on, depending on the context, may more suitably replace motivation. There are two main ways in which motivation can be used to create a desire in the individual to participate effectively in a learning activity:

- i. Helping the individual concerned to visualize a direct relationship between a specific action and a meaningful goal.
- ii. Helping the individual to appreciate the relationship, even if it is an indirect one, between a certain action and some

artificial goal.

In these cases, motivation can stimulate a desire for action which will lead to the achievement of a specific purpose. To motivate a learner may prove difficult, unless he has an appropriate and satisfying purpose in view. The suitability and appeal both of purpose and the method of motivation employed for its accomplishment are directly related to success of learning.

### Place of Motivation in the Teaching-learning Process

Factors like readiness, interest, motivation and satisfaction are crucial to the teaching-learning process. Motivation involves stimulating learning in a number of ways. Effective teaching attempts to encourage meaningful learning. It strives to create a desire to learn. As it concerns the teacher, the dominant factor in motivation is the desire of the teacher to inculcate attitudes favourable to learning. Also, if the curriculum is properly adjusted to the learner's capacities and is in consonance with his growth and development, purposeful learning can be achieved through proper motivation. It has conclusively been proved that when the learner has a dynamic purpose, his learning will be effective.

A major problem faced by our teachers today is the increasing difficulty they face in inculcating in their students the burning desire to learn. It has been discovered that of all the problems that teachers considered important, motivation was of the greatest magnitude (Davis, 1947). This problem is particularly acute at the secondary school level today. Glowing tributes continue to be poured on teachers and pupils of the olden days, who forged successfully ahead with or without motivation. It should be noted that

changing time and circumstances, including the changing systems of values have exerted a tremendous impact on the learning attitudes of our secondary school students today. The primary school child performs tasks mainly to please the teacher. During the transition period between childhood and adulthood, the adolescents found in the secondary schools are no longer satisfied to engage in activities merely to please the teacher. They have now started to establish their personal goals that provide the source of self-motivation. What such goals are in terms of social acceptability in particular are crucial to the success or otherwise of the teaching and learning process. Often their personal goals can be in direct conflict with many purposes that are commonly set for the youth by their parents and teachers. It is equally true that they are not, at this stage, sufficiently mature to have developed any good capacity for complete and independent action. The secondary school teacher, therefore, is continually faced with the task of stimulating action without necessarily continuing in the paternalistic tradition of the primary school, but in a manner that ensures growth toward self-motivation while preserving individual initiative. Teachers, on their part, do make serious mistakes in their effort to motivate learning. Such mistakes may be traced fully or in part to their lack of understanding of the total effects of various approaches to motivation or to their peculiar philosophy of education. The authoritarian-oriented teacher, for instance, is bound to use devices like blame, ridicule, threats, and physical force to motivate learning. Often, inexperienced teachers, particularly the beginning ones, make mistakes that are based on their own feeling of insecurity.

According to Stiles and Dorsey (1950), when an inexperienced teacher who earnestly desires to be successful finds that he actually

does not know what he should do to facilitate growth, it is natural for him to resort to procedures similar to those that were employed when he was a pupil in the secondary school. Those teachers who frequently love to take a cue from the practices prevalent in the past should note that education is a dynamic process and so should be the methods, techniques and devices utilized, to make it purposeful and goal-oriented. The following are some of the mistakes teachers continue to make, sometime innocently, in their effort to motivate learning.

- (a) *Expecting students to learn willingly whatever is set before them:* With such assumption in mind, the teacher may expect the student "to learn because he is told to learn it" (Blair, 1947). Students seldom learn efficiently and sometimes even refuse to learn under such circumstances unless the material assigned by the teacher is closely related to the interest and recognized needs of members of the group. A student may, if the consequences of not learning are grave enough, go through the required process. He may even force himself to actually memorize material and retain them to get over the set goal, but it should be remembered that, as Socrates once put it, 'Knowledge gained under compulsion has no hold on the mind'. In the circumstances discussed above it cannot be said that the individual concerned has learned effectively or that he has been well motivated to learn or to continue learning.
- (b) *Rewards to induce students to learn:* If a teacher realises that his students do not achieve any meaningful learning voluntarily or willingly, he may seek some ways of making them to move towards teacher-determined goals. He

may resort to offering rewards, prizes or other forms of unwholesome inducements to encourage students to perform the assigned tasks. Many teachers are still fond of resorting to what can be described as "new tricks and new bribes" to lure students to learn effectively. Rewards that appear as bribes should be discouraged as a means of motivating learning.

- (c) *Use of punishment to force learning:* When 'bribes' discussed above do not work, teachers may turn to the use of various forms of punishment as a means of motivation. It is common in some secondary schools to find students who fail to complete assignments or who fail in class tests or quizzes being detained after school, forced to do some manual work, excluded from participating in school activities, ridiculed in front of fellow students or even given other forms of corporal punishments. Some teachers use low grades and even failure as a (negative) method of motivation.
- (d) *The practice of making only a few to succeed:* The practice of permitting only a few conforming and dedicated students to pass examinations is found in most secondary schools. What teachers who practise this technique assume is that withholding success to many and limiting it to only a few more able ones will encourage more students to work harder to achieve success. In actual practice, the opposite of that assumption is often the result. This technique may even force the students so deprived to adopt "a what's-the-use" attitude. The writer remembers clearly that he was forced to drop General Science subject in his third year in the secondary school, because the teacher who was teaching that subject, made

him (the writer) feel rather handicapped in that subject alone. He lost confidence in that subject and also in the teacher who handled that subject and so dropped it.

Another story that can help to further illustrate this point was narrated by a University freshman. He had asked his academic adviser's permission, to drop a course after the first class meeting. When asked why he wished to drop the course before getting sufficiently acquainted with the nature of the course, he replied that the course lecturer, after counting the number of students in the class, told them he would give about eight F's in the course, and advised those who did not want to receive one to govern themselves accordingly. The student concluded that he knew he had failed that course before he even started it.

The course lecturer must have announced this anticipated number of failures in an effort to motivate his students' learning. His effort, however, had a negative effect on this particular student.

### Some Significant Elements in Motivation

*Maturation* It is beneficial to stimulate activities only when the individual involved is physically, mentally, socially and experientially prepared by growth and maturation for such action. The whole field of motivation may be more fruitfully and judiciously approached from the viewpoint of growth and development of bodily structure as related to maturation of behaviour. As the old saying goes, you cannot put old heads on young shoulders.

*Law of Effect* If an individual has a definite goal in view and is constantly being made aware that he is on the right track, a feeling of elation and satisfaction is certainly bound to

be evoked in him. Every activity is tied up with a feeling of pleasantness or unpleasantness in a greater or lesser proportion. An individual often tends to select those acts which bring about a pleasant outcome.

Briefly put, law of effect maintains that the acts which lead to consequences that satisfy a motivating condition are selected and fixated, but those that lead to consequences which do not satisfy a motivating condition are eliminated.

*Knowledge of Results* Motivation can be greatly enhanced if an individual is constantly informed of the progress he is making. Knowledge of results is considered to be a positive motivating factor for all ages, classes and levels of maturity and particularly for children. It is true that a student who is informed at regular intervals, about his progress in a given course of study for instance, will develop a better attitude toward his work and can more readily improve his methods of study.

*Purpose, goals and Ideals.* All motives and drives, whether they are conscious or unconscious, are said to be purposeful in the sense that they are headed toward a definite objective or a realizable goal. It therefore, follows that the more clearly an individual perceives his goal or objective, the more strongly he is motivated to strive to achieve it. Any acceptable technique which helps the individual to visualize the end from the beginning and to keep this vision focused on the end-result, will greatly facilitate the process of learning. The interest and enthusiasm which often accompanies desirable and clearly perceived end-results or goals can directly be transferred to the means motive. The more clearly the goal is perceived, the more strongly the act is motivated. So, every effort expended to make the goal more vivid and vital is a sound step in the direction of effective motivation.

*Rewards and Punishment.* Rewards appeal directly to ego-maximization and the type of elation that comes with success. They entail initiative, energy, competition, self-expression and creativity. A reward motive suggests security and status. Reward may be material, social or spiritual. Material rewards include gifts, money, prizes and other objects of value.

Motivation through rewards has some advantages. It is based on strong native drives. It is readily available and easily applied. However, if this element is not judiciously used and with caution, it may create some undesirable effect on certain individuals on whom it is applied. For example, it had been discovered in a study of honesty among school children that a certain group that was stimulated to honesty through rewards was actually more dishonest than the average students in this group who were so strongly motivated by the desire to win prizes that they were dishonest in order to win prizes for honesty. This tendency may explain in part, why some world renowned athletes resort to drugs in order to stay on top at all times. Experimentally, rewards have been found to be powerful incentives, but they are far from being ideal forms of motivation.

On the other hand, punishment is a negative form of motivation. It is inhibitory, not creative and expansive. It is considered to be extremely dangerous and inimical to cultivating the best type of personality in a functional democratic society. The doubtful gain from this source of motivation is offset by the apparent harm to the personality of the individual involved. It destroys initiative and facilitates the development of inferiority complex. Punishment may further have the effect of a complete inhibition, so that the individual does not respond at all. Punishment, it should be stressed, is based on the negative motive of fear, like the fear of



physical pain, embarrassment and threatened loss of status.

What we have discussed above are usually treated under the broad topic of **EXTRINSIC MOTIVATION**. Extrinsic motivation is closely associated with the authoritarian techniques of teaching, because it seems to imply a process by which the learner is 'compelled', as it were, to engage in the action regardless of his personal interest in what is being done. The teacher resorts to these external stimuli to elicit the required action from the learner. That is, he relies heavily on various extrinsic motivating factors to compel the student to engage in learning experiences which the teacher considers important for them.

### **Intrinsic Motivation**

When teaching seeks to inculcate in the learner, self direction, and independence of thought and action, interest is resorted to as the primary source of motivation. The sense of the value of what is being learnt can elicit that desired interest. When the interest is not present, the teacher may resort to the type of artificial inducements discussed above.

Intrinsic motivation is based primarily on the interest of the learner. When a student desires to learn, he may do so as a result of a deep motive related to personal interest. If the student is not interested in a learning activity, the efforts of the teacher to force him on may be fruitless. If the student is interested because of the learning activity itself or because of the anticipated, direct, and natural outcome of the activity, his motivation may be referred to as intrinsic.

So, intrinsic motivation develops from a felt and recognised need or goal. It is present in the learning situation where the learner finds satisfaction in the activity of learning itself. It leads to continuing motivation, and is a product of many factors. There may be no

single force that can be said to be the basis for intrinsic motivation. Every individual attempts to achieve integration in varied and complicated ways as a result of various complex factors which tend to cause disequilibrium. The learner becomes engaged in specific activities as a means of solving personal problems. The solution of one problem may lead to the recognition of the need to solve other problems.

Intrinsic motivation further enhances the total adjustment of the individual. When it is supplied from external sources, motivation aims rather at establishing the particular kinds of behaviour, possibly at the expense of maladjustment in other phases of personality development. Intrinsic motivation allows the learner to achieve a normal balance of behaviour.

### **Motivation and Learning—Implications for the Teacher**

The teacher should strive at all times to develop a learning situation that can stimulate self-direction and self-motivation, by allowing the students to engage in forms of action that are directly related to their personal goals. Pleasant physical surroundings, meaningful classroom routines, encouraging emotional atmosphere, warm and friendly teacher-student and student-student relationships and enhanced processes to ensure the wholesome development of the student's self-esteem are among the crucial conditions that contribute towards effective motivation.

Intrinsic motivation in particular is facilitated by establishing conditions which are satisfying to all the members of the school community. Such conditions should be based on attitudes of mutual respect, cooperation, shared responsibility and effective rapport. The

teacher should strive to help the students to plan experiences that are meaningful and related to their varying needs. As pointed out earlier, interest constitutes the primary basis for intrinsic motivation. It should be the duty of the teacher to help the students to understand themselves in order to recognize their real interests. Most often students get confused about their real interests. Sometimes unwholesome actions by them may be perpetrated in an effort to satisfy unclarified interests.

In the teaching-learning situation, learning should be made to carry its own reward for the learner. A way to achieve this is to make the subject matter significant to the learner. If interest is aroused within the learning activity itself, the learner will develop a sound attitude to get a lot more involved in the process. The teacher then has to begin at the point of contact and within the range and capacity of the student. He should further help him to analyse the relationship between aptitude that comes with maturity and his desired goals. He should not encourage the student to attempt to achieve goals that are beyond his capability.

### Summary

The process of creating a desire to act can be referred to as motivation. Human behaviour is characterised by a motivational sequence: a drive, a condition which activates and directs behaviour, followed by an

instrumental response leading to an incentive, which eliminates or reduces the drive. The study of motivation attempts to clarify how such drives develop and influence behaviour. The source of motivation can be found in the desire to maintain integration within an environment.

As a function of the teaching-learning process, it represents a major problem faced by both the teacher and the learner. The traditional teacher expects students to learn successfully after he has applied on them, incentives like reward, punishment, praise, blame and so forth. Increasing evidence has, however, shown interest and needs, achievement of success and encouragement to be crucial factors in motivating learning.

Intrinsic motivation has been recognised as a sound and safe basis for promoting learning. This type of motivation is closely related to the learning process where it forms an integral part. It is an effective type of drive which is obtained by making the subject-matter of learning, significant and meaningful to the learner. It is further enhanced by taking the interests, recognized needs, goals and aspirations of the individual into consideration. A teacher who adopts this sort of motivation, utilise processes like establishing group rapport among his students, discovering the interests of the learner, also, identifying and clarifying his needs and goals and helping the learner to evaluate his achievements.

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# **Girls' Education : Importance and Impediments .**

DR (SMT) LAKSHMI MISRA

*Professor, University College of Education, Dr Harisingh Gour Vishwavidyalaya, Sagar (M.P )*



birth, with the modern medical facility of amniocentesis being used to detect the sex of the unborn child and if it is a girl, abort it. A Bombay survey in 1982 showed that of the 8,000 abortions carried out after pre-natal sex determination, 7,999 were of female foetus. In 1984, about 40,000 female foetuses were aborted in this city alone. Dr Shanti Ghosh, eminent paediatrician and UN consultant on child health, highlighted through scientific data discrimination against the girl child at the same workshop. Of the 10,000 odd births in a Delhi hospital in 1984, 5,263 were male and 5,115 female. Although biologically the female child is stronger, the death rate among the female children is more. The male child gets better nutrition as well as health care. There is a higher incidence of severe malnutrition among girls particularly between the age of 1 and 5. According to the Chairman of the National Media Centre, though the infant mortality rate in India has dropped, the mortality of the girl child has not dropped.<sup>1</sup>

As such, born into socially inhospitable environment, a girl is considered to be an undesirable expense. Her childhood is cramped with domestic chores. Early marriage and early child-bearing constrain the prospects of her all-round development. It is only through education that many of her ills can be rectified and her self-esteem restored.

Long back the statement of the Hartog Committee about the importance of girls' and women's education holds good even today. It had stated: 'the importance of girls' and women's education in India at the present moment cannot be over-rated, It affects vitally the range and efficiency of all education. The education of the girl is the education of the mother and through her of her children .. It is only through education that Indian women will be able to contribute in increasing measure to the culture, the ideals and the activities of the country.'<sup>2</sup> On the occasion of

the International Education Year (1970), one of the UNESCO publications rightly stated: 'to maintain women in a state of cultural inferiority is to keep dormant half the brains of humanity. This would certainly be an injustice, but worse still, it would be an incalculable loss of human resources for both sexes, for society and for the cultural heritage'.<sup>3</sup>

This issue has acquired a new significance in our country since Independence. 'India now recognises in her women an invaluable natural resource, the development of which is an investment in her future. The contemporary Indian woman is both a citizen and a home-maker, and in order that she may perform both these functions efficiently and responsibly, she must be provided with at least a general education'.<sup>4</sup> It has been increasingly realised that unless effort is made to educate the girls and women, the rapid progress of the country will be seriously impeded.

Despite the extraordinary increase in the school-going population the disproportion between the number of girl and boy pupils has remained more or less unchanged. This is true not only in quantitative but also in qualitative terms. Girls do not only not enjoy all the educational opportunities, often they do not have any at all, with the result that two-thirds of India's illiterate children comprise of girls and over vast areas of the country the majority of illiterates are women. Girls are often victims of discrimination which arises from various causes and is followed by various consequences.

According to Article 26 of the Universal Declaration of Human Rights and the convention and recommendations against Discrimination in Education, which were adopted by the General Conference of the UNESCO in 1960, every human being has the right to education. But enjoyment of this right is not always ensured in the case of boys and even less so in the case of girls, although

education is considered to be a major instrument of social change and an essential input of economic development. In our country the education of girls lags far behind that of boys. Even at the elementary stage girls have far less access to education. No doubt the attainment of independence and constitutional guarantee of equality helped in the expansion of education among girls, the situation at present is far from satisfactory. The Constitutional directive to provide free and compulsory education for all children till they complete the age of 14, has remained unfulfilled even now. Educational expansion is practically confined to the urban middle class and that too mostly among boys. On an average, at the elementary stage (6-14 age group) only 80 per cent girls were estimated to be in schools during 1989-90, as against about 104 per cent boys all over India. This position varies from state to state. Rajasthan, Madhya Pradesh, Uttar Pradesh, Bihar and Orissa are among the most backward states as regards girls' education. Girls are still categorised as belonging to the weaker section of the society. The inferior status of girls is linked to their traditional role in the family. It is very often repeated in traditional families that God created women for the discharge of duties inside the home and men for all the others. Education is not considered necessary for this inside role of tending animals, carrying water and wood, cooking and washing nor is any skill needed for such work.

### **Impediments**

As such, impediments in the spread of education among girls are many. They can be categorised as follows:

1. Social
2. Economic
3. Educational
4. Other

### *1. Social Impediments*

Among social impediments the indifferent or rather adverse attitude of parents and society towards girls' education is most significant. In backward communities and in rural areas the parents and society in general do not consider the education of girls to be of any consequence. The traditional subservience still weighs heavily on parents' mentality everywhere. Whereas the number of parents who want to improve the lot of their daughters is constantly increasing, the number of those who fear change is still greater, with the result that parents simply do not want to send their daughters to school. Even according to some parents education spoils the girls. The economic reason apart, it is the attitude towards girls' education which is one of the very important factors hindering its expansion. Ways and means can be found out to send the girls to schools as in the case of boys if parental attitude is favourable towards educating them. "The socio-cultural comparison to get a daughter married has led to a girl being regarded as a burden especially as she has to be brought up and trained without the parents receiving any economic support from her (later on). Discrimination between the sexes in nutrition, medical care and education is directly related to this attitude".<sup>5</sup>

Illiteracy of parents and specially of mothers has always been a hinderance in the spread of girls' education. The more illiteracy there is among mothers, the less chances their daughters have of receiving education.... out of thirty-six countries with a literacy rate of at least 50 per cent among women, thirty-five had a normal female school population... on the other hand out of the fifty countries in which most women were illiterate only twelve had achieved a normal rate of school attendance for girls; thirteen others were seriously lagging

behind, with less than one-third of the school population consisting of girls, and twenty-five showed a slight or serious lag.<sup>6</sup> According to 1981 Census in India, the literacy among women is 24.88 per cent. Hence it is but natural that majority of women do not consider education necessary for their daughters.

Then there are social evils like child marriage, purda and discrimination between caste and scheduled caste girls. According to the Report of the National Committee on the Status of women in India<sup>7</sup>, 'the social status of women in India is a typical example of the gap between the position and roles accorded to them by the Constitution and law, and those imposed on them by social traditions'. Although the Special Marriage Act 1954 fixed the minimum age of 18 years for the marriage of girls, except for urban elites, it is rarely adhered to. According to UNI investigations, about 25,000 child marriages took place in Rajasthan in 1984. The number in 1983 was 30,000. In April 1985 about 40,000 children, some barely out of the cradle, were married on Akshay Tritiya or Akhe Teej although Rajasthan has specific legislation banning child marriage.<sup>8</sup> But Rajasthan is not the only defaulter. In Madhya Pradesh, Bihar, Uttar Pradesh and Andhra Pradesh, in fact in almost whole of the rural India child marriages are a common practice. After marriage, household chores do not allow time and in-laws do not allow facilities for the girls to study, except in a very few cases. Early marriage and lack of education constitute a vicious circle affecting population growth and health of the mother and the child and the status and education of girls.

Purda is another social evil, still popular among backward and traditional communities, specially of rural areas, blocking the road to education of girls. Discrimination among caste and scheduled caste is also an

important factor worth considering. Schools for caste girls do not tolerate and at places do not allow scheduled caste girls to study in them. With the existing paucity of funds it is not possible to establish separate schools for them and the result is that most of them are doomed to remain illiterate.

## *2 Economic Impediments*

In spite of appreciable economic growth since Independence, our country is still considered to be a poor country. Almost 50 per cent of our population is below the poverty line, i.e. this population cannot afford a two square meal. Their first priority is food, not education. Beside sharing the household work, girls have also to do some petty jobs to earn. If mothers are full-time workers, the burden of managing the household and looking after the younger brothers and sisters falls on them. Although the education of girls up to the age of 14 has been made free and at many places uniform and learning material are given free, there are other expenses which have to be met.

A study conducted by Dr S. L. Gupta<sup>9</sup> to find out the overall private costs of schooling girls at the elementary stage under different managements in Meerut district of Uttar Pradesh, revealed that girls reading in Classes I to VIII under different managements were required to pay different amounts of fees and funds. On an average, annual tuition fees and funds per girl as well as total costs of textbooks and supplementary material per pupil amounted to Rs 25.28 in Class I, Rs 27.52 in Class II, Rs 32.81 in Class III, Rs 42.56 in Class IV, Rs 40.93 in Class V, Rs 50.80 in Class VI, Rs 55.61 in Class VII and Rs 56.16 in Class VIII. Whereas Zilla Parishad Schools located in rural areas did not charge any tuition fee and funds in Classes I and II, except only Rs 2 in Classes III, IV, V and Rs 16.20 in Classes

VI, VII and VIII. Urban private trust schools charged Rs 66.66, 80,104,105,17.5, 40.45 and 40.45, respectively, for Classes I to VIII annually. Even in village schools the cost of textbooks and supplementary materials ranged from Rs 1.36 in Class I to Rs 27.25 in Class VIII, annually.

Besides the above expenditure, which may be taken as near average to whole of India, schooling of girls is a loss of time and earning to the family which poor people cannot afford.

### 3 Educational Impediments

*Physical Facilities:* There are many habitats in our country where long arms of the educational system have not yet reached. Sparsely situated small hamlets in desert areas, hilly regions or thick forest areas do not yet have schools worth the name. The schools established in small villages are very unattractive. One or two-room shabby mud huts, with no facility of drinking water or lavatory, no furniture except perhaps a broken table and chair for the teacher, no mats for the children, not even a blackboard, things like audio-visual aids do not exist for such schools, ill-trained and mostly rude and unwilling teachers complete the picture of a village school. In short, they are a picture of apathy. It is very natural that such schools, if at all they are available, deter the children from entering them.

The Fourth All India Educational Survey<sup>10</sup> has revealed that among the total rural habitations of about 10 lakh, about seven per cent habitations did not have primary schools or primary sections even up to a distance of two kilometers. Of the 474,656 primary schools in the country, only about 47 per cent were functioning in pakka buildings. About 40 per cent schools were run in kuchcha buildings, in thatched huts and tents and 40,730 primary and 1,810 middle schools were

run in open space. Only about 24 per cent schools had the facility of urinals and lavatories, in rural areas only 98,928 or about 18 per cent schools had this facility. Mostly primary schools did not have a library at all. Only about 30 per cent had libraries but they did not have a sufficient number of books. About 40 per cent primary and 53 per cent middle schools had textbook banks, majority of which were in urban areas. A large number of primary schools, about 40 per cent, had no blackboards. From the survey figures it was observed that about one-fourth of both the primary and middle schools were run without mats or furniture in any of the classrooms. In 84,915 or about 18 per cent primary schools no chairs were provided even for the teachers. Fifty-three per cent primary schools and 34 per cent middle schools had no play-ground facility. Games and sports material was available only in 15.4 primary and 65 per cent middle schools.

Out of 47,456 primary schools, 12.4 per cent and out of 1,12,404 middle schools 9.3 per cent had the incentive scheme of free uniform to students. Attendance scholarships for girls were available in 13.1 per cent primary and 16.2 per cent middle schools and not available in about 87 per cent primary and 84 per cent middle schools. Similarly, 73 per cent primary and 83 per cent middle schools had no mid-day meal programme. Only 37.5 per cent primary and the same percentage of middle schools had provision for free supply of textbooks. Existing facilities for medical check-up of students were far from adequate.

According to the Fourth Educational Survey, of an estimated child population (9-14 age-group) of 13.13 crore, only 56.1 per cent children were studying in schools at different stages under formal system, whereas for the remaining 44 per cent of this age-group, only 1.16 per cent villages had facilities for non-formal education.



The Survey further revealed that education of girls was the weak link in our educational system. Of the total enrolment in Classes I to V, girls constituted only 38.2 per cent. Among different states Meghalaya had the highest (49.3) and Rajasthan the lowest percentage (24.3) of girls in schools. At the middle stage girls constituted only 37 per cent of the total enrolment.

Though the situation might have improved since then, there is not going to be a vast difference from the position of 1978.

*Teachers:* Whereas the enrolment of girls constituted about 37 per cent of the total enrolment, the proportion of women teachers among all school teachers was about 27 per cent in 1978. It may have risen to about 30 per cent by now. Among urban teachers, their percentage was 46.7 while in rural areas it was 18.4. Obviously village people who are more conservative, would not like to send girls to the schools where there are no women teachers. The main reason behind the lesser percentage of women teachers in village schools is the shortage or even the absence of safe accommodation there, with the result that women prefer to remain unemployed rather than go to villages except in very hard circumstances. In addition to that, a larger number of single teacher primary schools suffer from frequent closure because of the absence of the teachers. This fact also discourages many parents to send their daughters in the schools.

*Curriculum:* The National Committee on Women's Education<sup>11</sup> had recommended that a good curriculum should have the following objectives:

(1) creating right attitudes in life—individual and social; (2) imparting of useful knowledge; (3) giving of practical training for life; (4) developing good personal habits; and (5) inculcating a sense of social awareness and a spirit of service to society.

Unfortunately even after 32 years of the recommendation of these objectives, most of them have not been fulfilled till now. The curriculum at the primary and middle stages, though revised from time to time, does not create the right attitude in life. Knowledge useful to the girls for improving their health, immediate surroundings and daily chores is lacking. It does not prepare them for their future role as housewives and mothers. It is not job-oriented either. This makes the parents indifferent to their daughters' schooling, with the result that even among those who take admission in Class I, 85 per cent girls drop out before they reach Class VIII.

*Wastage and Stagnation.* Wastage and stagnation is greater among girls, as compared to boys, because their causes have a larger application to girls in our existing social conditions. The extent of wastage and stagnation varies from 60 to 85 per cent among different educationally backward states. It is less in the higher caste group than in the lower. The low income of family has a bearing on wastage and stagnation. The occupation of the father favours or opposes continuation of education among girls. A study conducted by P. Choudhary on wastage and stagnation in primary schools in the district of 24 Paraganas<sup>12</sup>, for determining the relative frequency of incidence of various factors, revealed that 33 per cent wastage and stagnation was due to economic causes, i.e. parents' poverty, etc., 26 per cent due to parental indifference to education, 15.8 per cent due to irregularity of attendance, 6.8 per cent due to social habits and customs, 4.8 per cent due to admission of under-aged children and four per cent to ineffective teaching methods and curriculum. Other important factors responsible for failure or withdrawal of girls from the schools are admission throughout the year, a wrong system of

examination, large classes, defective curricula, lack of attracting and holding power of the school, incomplete schools and single teacher schools, poor relationship between the educational system and the needs of the community, lack of competence and social as well as economic status of the teachers, ineffective and inadequate co-curricular activities in the schools, lack of motivation for learning in pupils, excessive involvement of the pupils in domestic work for assisting the parents, ineffective inspection and supervision and lack of instructional material suitable for primary schools<sup>13</sup>. The conflict between school timings and household work, longer hours of schools and crushing burden of household duties force the girls to withdraw from school or lead to failure.

*Examination:* Our annual examination system right from class one to higher classes has been described as a necessary evil—one of the worst features of Indian education. An unsound examination system continues to dominate instruction to the detriment of real expansion of knowledge. Inadequate and unreliable as it is, it does not examine all the mental faculties and the proper development of the child, with the result that in lower classes a large number of girls fail. This leads to stagnation, wastage and finally to withdrawal of girls from schools.

#### 4. Other Impediments

*Lack of Funds:* The Government of India allocates about three per cent of its GNP to education. Out of this allocation about 28.6 per cent was provided for early childhood and elementary education in the Seventh Five-year Plan. While in other developed countries seven to ten per cent of the GNP is spent on education and out of that 60 to 75 per cent is spent on elementary education. It is very apparent, then, that our education lags far

behind that of developed countries. In our country whatever amount is available for elementary education, it is not proportionately distributed between urban and rural areas and not even between boys' and girls' institutions. Hence the worst sufferers are girls' schools.

*Population Explosion:* This has been our chronic problem for quite some time. Along with being a crushing burden on the country's resources, it is one of the major impediments in the spread of girls' education. Additional provisions of educational facilities cannot simply cope up with the additional increase of one crore seventy lakh population every year. Whatever progress is made, it is neutralised by the excessive population growth. At home elder girls are perpetually burdened with the task of looking after younger ones, with the result that either they do not go to school at all or if they go, they do not pass the examination or leave the school for good.

#### Suggestions

It will not be out of place here to give suggestions to improve the existing situation:

1. First and foremost the compulsory primary education laws passed by different states should be updated and enacted fully.
2. The Government of India should spend at least six per cent of its GNP on education and out of that a major share—about 75 per cent—be allowed to elementary education, because it concerns the good of the majority of the people. It should be ensured that girls also get due benefits of their share in the form of facilities in co-educational institutions or separate institutions where desired.
3. It is now overdue that all habitations in

the country should have elementary schools. Government should seek cooperation of local people, but people themselves should come forward without waiting for the Government appeal. The old apathetic attitude of the people to get everything done by the Government only, has got to be changed. Local people can cooperate in different forms like construction of school buildings, donation of land for play-grounds, mid-day meal, supply of blackboards, chalk, mats or desks for the students, chairs and tables for the teachers and making the schools and their surroundings attractive. This can be very well taught to the people through TV programmes which cover about 70 per cent of our population.

4. So far as the proper selection and training of women teachers is concerned, girls and women of the same or nearby habitation be selected or encouraged to become teachers. Their training should also include child psychology and a sense of dedication to the well being of the society. Teachers of the village schools should be trained to become leaders of the community. Special allowance and safe accommodation to the village lady teachers will act as incentive to women to go to the villages.
5. To fight the social evils of the society and to educate the public opinion about the importance of girls' education, door-to-door visits of social workers, companions through speeches, posters, banners, film shows, radio and TV programmes are essential. Intensive and extensive enrolment drives should be launched to bring more girls to schools. Educated persons and specially educated women have a very important

role to play in this regard. Enrolment targets be fixed and every effort be made to attain them.

6. At the elementary stage the school curriculum be oriented to the local needs. Girls should be made aware of their surroundings through history and geography, besides reading, writing and simple arithmetic. Population education should form an integral part of the curriculum. Simple stitching, knitting, preparation of simple household items will attract girls to schools. Job-oriented courses like making of candles, joss-sticks (Agarbattis) clay toys, and such other items may be introduced which can be further expanded according to the needs and facilities available. The principle of learning by doing be implemented as far as possible. It may be on a small scale but all schools must arrange for some games and sports. Similarly, some cultural programmes must be organised once a week.
7. Better textbooks and other instructional material be prepared on a decentralised basis.
8. The school timings need not be from 10.30 A.M. to 4.30 P.M. It may be from 12 noon to 3 P.M. or any other time suited to the working hours of the locality. In the same way vocations can be adjusted according to the sowing and harvesting season of the cultivators or other vocations of the area.
9. Centres for non-formal education should be started for non-entrant and drop-out girls of 9 to 14 age-group according to their convenience.
10. Although it is desirable that poor girls be provided with free uniform, books and other learning material, it will be equally good if opportunity is provided

- to them to earn while they learn. The experiments carried on in the elementary and middle schools of Madhya Pradesh in this regard have proved successful. Needy school students prepare chalks and tatpattis (Mats) in their spare time and even during vacations and earn money to support themselves. Such schemes for girls may prove more beneficial. This will teach them to be self-dependent, which is more honourable than to beg for free books or other facilities. No doubt, it will need planning and preparation, but nothing can be achieved for nothing. More and more merit scholarships should, of course, be provided to motivate girls to higher achievements.
11. In order to create public opinion and to win the support of the parents in favour of girls' education, vigorous steps be taken to educate the adults, so that the bondage of customs and conservatism may be removed and they may become more enlightened. Girls' schools may become community centres for imparting education to adult women of the area also.
  12. In the existing machinery of administration the proportion of women officers is very insignificant and generally men officers take very casual view of girls' education. How surprising it is that a lady could become and remain the Prime Minister of India for 16 years and there are scores of women administrators but in general women are considered incompetent for administrative work. This prejudice must be removed from the higher level. Women officers will definitely give more attention to the problems of girls' education.
  13. Effective supervision of girls' schools by trained and sympathetic staff can go a long way in improving them. The existing inspection system, which is either like police inspection or it is surface inspection, will not improve the situation.
  14. The present annual examination system creates more problems than it solves. Weekly, fortnightly and monthly tests should be introduced and tests should be such as to measure the different faculties of the girls. A record of all the activities of the girls in the schools be maintained and promotion to the higher class should depend on this record rather than only on annual written examinations. It will be better if examinations are conducted only to divide the students into different sections according to their ability and achievement and up to Class V they are promoted every year. This will save great wastage in lower classes.
  15. Medical check-up of girl students is the prime need of modern day. Due to seasonal and chronic illness many students do not attend schools for days together which leads to failure and then wastage and withdrawal. Therefore, National Health Scheme in collaboration with the state health department should look into this problem and provide monthly health care.
  16. Lastly, the problem of inaction is to be fought at every level. Whatever facilities and funds are available, they are not properly utilised. It is very rarely that educational administrators and teachers carry out the work allotted to them with interest and in a spirit of dedication and service. For this provision of reward and punishment is a must.

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# Vocationalisation : A Study in Economics and Philosophy of Education

N. MALLA

*Professor of Philosophy, North Eastern Hill University, Shillong*

NOT only the Central Government in India but also the educationists in our country are pleading for rapid and intensive vocationalisation of education at all levels preferably up to the plus two stage. The 10 + 2 + 3 pattern of education was introduced in our country with this end in view. Various education commissions set up from time to time have also recommended vocationalisation in some form or other. The National Committee set up to review the new education policy has its approach paper laid emphasis on vocationalisation of education at least up to the plus two stage. Even some student organisations are also demanding vocationalisation of education at all levels. As a matter of fact, some educational institutions have already started introducing vocational courses. But the fundamental and conceptual issues relating to vocationalisation have not

been discussed in detail. The objective of the present paper is to unravel the semantics of the concept of vocationalisation.

## Meaning of Vocationalisation

The term 'vocation' literally means profession. So, vocationalisation, in this sense, means professionalisation. But is any profession a vocation? The protagonists of vocationalisation do not use vocation and vocationalisation in the above said sense. As a matter of fact, instead of explicating what is meant by vocationalisation, they present a list of subjects and characterise them as vocational ones. Subjects like typewriting, book-keeping, management, bee-keeping, radio mechanics, watch repairing, electronics, etc. have been kept under it. Now the question is: Is the list of the so-called vocational

subjects exhaustive at any point of time? To this question, the answer is an emphatic 'no', for the simple reason that the basis or criterion on which a subject is chosen and is included in the vocational list varies from place to place and from time to time. Though the proponents of vocationalisation have not offered any explicit criterion, yet an analysis of the list of the subjects included under it reveals the following: A vocational subject is that which can provide employment to its learner/practitioner. But this definition breaks beyond certain stage. Will philosophy, history, mathematics, etc. be included under vocational subjects? Because teaching of these subjects is also treated as means of livelihood and so is a kind of employment. Suppose, after graduating in linguistics one gets into the Indian Administrative service. In other words, the study of linguistics has helped somebody in securing a vocation or an employment. Is linguistics for that matter a vocational subject? Even though philosophy, history, mathematics, etc. sometimes help people in securing jobs or employment, yet the proponents of vocationalisation will not treat these subjects as vocational ones. In fact, they would restrict the appellation 'vocational' to certain select subjects only. Liberal arts and pure sciences may be excluded from the vocational list but what about medicine, engineering and agricultural sciences? Would the proponents of vocationalisation treat these subjects as vocational? Perhaps, not. They are ambivalent on this point. In fact, all technical subjects are not included under vocational subjects. Only those subjects the study of which can equip a student, by and large, for self-employment are regarded as vocational subjects. So, self-employment has been accepted as one of the criteria of vocationalisation. Further, vocationalisation does not mean that a particular subject is being vocationalised, rather the objective of

vocationalisation is that every student learns a trade or an applied art along with other subjects. So, learning a trade is to go for vocationalisation. To sum up, vocationalisation means learning a trade with a view to self-employment.

### Knowledge and Action

Vocationalisation is based upon the presupposition that there are certain academic subjects which can be cultivated for the sake of scholarship only. In other words, they do not serve any practical utility at all. They do not inspire or lead to any action. The conceptual basis for such kind of distinction is that knowledge and action are two separate, distinct and logical categories. In the context of Indian philosophy, the distinction between knowledge and action was upheld by Uttar Mimāṃsā. In contemporary European philosophy, Ludwig Wittgenstein and Gilbert Ryle made an analogous distinction in their advocacy of 'knowing that' and 'knowing how'. Seen in this light, knowledge relates to information, facts, theories and laws. Whereas action relates to instrumentalities, techniques, modalities, and so on. A man with knowledge is in possession of information and facts and a man of action is in possession of techniques, plans and instruments. The Advait Vedānta of Saṃkara rates very high pure knowledge and in Purva Mimāṃsā action is given precedence over knowledge. The Purva Mimāṃsakas argue that there can be no such thing as pure knowledge. Knowledge is action in disguise.

The issue relating to vocationalisation can be fruitfully examined in the light of the distinction between knowledge and action made by philosophers both in the East and the West. Let us now concentrate on it. Can there be any action without being based on knowledge? Is theory a necessary prerequisite of practice? Do theories necessarily lead to

practice? The history of science and technology tells us that both theory and practice have grown and developed concurrently. Theoretical investigations in sciences have given rise to technology and engineering and practice of technology and engineering has necessitated investigation of some theoretical issues. But this is not to say that science stands for pure theory and technology for pure practice. Rather, as technology stands today, it contains a major chunk of theory in itself. That is to say, gradually technology is becoming autonomous. Theoretical discussions, whether inside technology or outside it, help technology develop. Without theoretical discussions, technology cannot grow at all. But it is quite possible for a person to be efficient in the application of techniques and yet not to know any theory. As for example, a person may know how to swim very well yet he may be absolutely unaware of the laws of floating. But this is not to say that knowledge of the laws of floating has nothing to do with the art of swimming. As a matter of fact, knowledge of the laws of floating may help one develop better techniques of swimming. If the thesis of vocationalisation aims at basing itself on the distinction of pure knowledge and pure action, the base starts crumbling. Except the so-called instinctive actions, all other actions are bound to have links with knowledge. So, practice and theory cannot be regarded as the distinguishing mark of vocational and non-vocational subjects respectively. The proponents of vocationalisation treat self-employment as the criterion. This goes to prove that the distinction between vocational and non-vocational is not conceptual but is empirical and pragmatic.

### **Arguments for Vocationalisation**

Vocationalisation has been advocated in

India only in the recent years. The reason is purely the massive growth of educated unemployment throughout the country. The pre-independent India did not face such a problem. The phenomenon of unemployment is a post-independence one. It is argued by the educational planners that vocationalisation holds the key to the widespread problem of unemployment. However, it is not argued out by the planners that vocationalisation is an effective response to fulfill the needs of technical manpower. As a matter of fact, India is surplus in terms of trained technical manpower. It is argued that introduction of vocational subjects at the matriculation and plus two stage will attract a large number of students. As a result, these students after passing out of the educational institutions will not flock to the employment market. So, the volume of educated unemployed will gradually go on decreasing.

But are the argument and expectation justified? Vocational streams have been opened in various educational institutions in the country. What is the response, and what is the output? How does it really work as a measure in reducing the number of educated unemployed? In answer, it can be said that no nation-wide survey has been conducted and no correct statistics are available to this effect. But basing on general observation one can say that the national ideal of vocationalisation is not paying the intended dividends. The reasons are very simple. The vocationalisation plan has not been integrated into the broad and general economic plan at the national level. Further, various aspects of vocationalisation have not been properly streamlined. As a result, the entire proposal for vocationalisation is moving at snail's speed. The mixed character of vocational education has also contributed to its lame duck run. In the entire country Polytechnics and Industrial Training Institutes were



opened to create low range technical manpower. But in due course of time, the turn-out from these institutions looked for employment in Government and semi-Government concerns. To add to it, at present, a large number of them are unemployed or under-employed. It is no good to create technical manpower; the economy of the country must be ready to contain them. Because of the wide gap between techno-educational and economic planning in India, a large number of the IIT products are leaving the country and seeking employment outside. If the degree diploma and certificate holders in different branches of engineering, trade and technology could not eke out gainful self-employment, how do we expect that students with some training in a vocational subject at the plus two stage will be able to do that? This point has not been seriously taken note of by our planners. Further, the so-called vocational education supposed to be imparted along with general streams of Humanities and Basic Sciences, is likely to be watered down. If the planners are genuinely concerned with vocational education, there should be exclusive institutions for the purpose. What is the need of studying and teaching, as for example, philosophy, history and sanskrit with electronics? In the process, the student will neither learn history nor electronics. Now the question is Will the introduction of Vocational courses solve the problem of unemployment? This question requires a detailed and elaborate answer and it will be attempted in the next section.

### **Vocationalisation and Basic Education**

Livelihood is gradually being linked up with education in the contemporary period. Of course, this is true that at every stage of human civilization professionals and persons with professional abilities have been in

demand. But in no time in human history was the number of professionals so very disproportionate to the demands of market as it is today. Mahatma Gandhi visualized the potential danger of indiscriminate spread of so-called liberal education which ultimately leads to unemployment and discontent among the youth. But this should not create an impression that Gandhi was in favour of elitism in education and so opposed to the spread of literacy among the people. Rather, Gandhi was highly opposed to any kind of elitism and was very much in favour of universal literacy.

Gandhi was advocating a system of education which is meaningful and relevant to life. This type of education is termed by him as basic education. The spread of education without any reference to life is bound to result in widespread unemployment and economic imbalance. Education cannot be treated as an isolated and solitary phenomenon. In fact, it constitutes an integral part of the socio-economic system and has to be viewed and shaped in the light of the needs, aspirations and objectives of the nation concerned. No economy can sustain if its objective is to create white collar jobs for the people. In fact, it is a simple law of economics that without increased production poverty can never be eliminated and so equality can never be achieved. The economics of the West European countries and that of the USA can afford to indulge in luxuries like opening up general education to millions but the Indian economy as it stands today, cannot afford that type of luxury. Further, even those countries are also facing the problem of unemployment on a very large scale. But the Gandhian ideals of basic education goes beyond the contemporary problem of unemployment, posed by the existing system of education. For Gandhi, basic education is a solution to a moral question. It is thus: Do I have a right to

eat without doing any manual work? He recommends manual work not only for students but also for teachers and bureaucrats alike. This is otherwise known as the doctrine of bread labour. This might look very odd and strange and very difficult to operate but this is one of the ways to get rid of the shambles created by the present system of education.

We have reached a situation in India today where the Government spends money in educating students and after the completion of their studies it (the Government) spends millions to create jobs for them. What has happened in the process is this: The major part of the governmental revenue is being spent in creation of jobs and subsequently catering to the comforts of the employees. So, the vicious circle needs to be broken. Basic education as envisaged by Gandhi provides one solution. It is a fact that the state cannot employ everybody passing out of various educational institutions of the country. What is to be done then? One answer is that the state should provide opportunities so that the individual may find self-employment as it happens in the United States and other developed countries. But in spite of the massive effort on the part of the government for vocationalisation of education it does not gain momentum at all in India. What are the reasons? The reasons are two-fold. (i) Economic, and (ii) Social. The Indian economy simply has not reached a stage where self-employment can be integrated with it. Again, security and minimum comfortable living attached with Government jobs, attracts young boys and girls towards it (government jobs). This ultimately brings about impediments in vocationalisation of education.

Basic education, on the other hand, presupposes altogether a different socio-economic value system. Large scale production with the sole ideal of consumerism is incompatible with basic education. Basic

education is not meant for a section of people who will be busy in producing consumer goods for the rest of the society. This type of arrangement is bound to give rise to an unjust social order. Basic education is not only a method of education but it represents a total way of life. It derives its force from a particular socio-economic order. Equity, social justice, dignity of manual labour, etc. are some of the important features of this type of socio-economic order. On the other hand, vocationalisation of education rests altogether upon a different socio-economic order. High technology, cut-throat competition, elitism and consumerism are some of the important features of this type of social order. Therefore, to choose between basic education and vocationalisation is to choose between two different philosophies of life. Seen in this light, vocationalisation can be termed as a strategy, a method of dealing with unemployment. Whereas, basic education reflects a philosophy of life. Vocational education is meant for those students who cannot compete with other brilliant ones. So, they have to be satisfied with a trade and subsequently, with a lesser standard of living. On the other hand, basic education, coupled with the ideal of bread labour, is meant for all.

The emergence of modern science and technology along with consequent appearance of industrial revolution in Europe, has given rise to a particular way of life which is reflected in the motto: produce more and consume more. When the economy cannot stand the pressure of consumerism by way of giving jobs to the millions, the call is given for vocationalisation of education. Is vocationalisation of education need-based? That is to say, is it the case that our country and our economy really need so much technical manpower trained in small trades? If so, then a large number of students passing out of polytechnics and engineering institutes

would not have remained unemployed. In this connection, an argument may be advanced that no government can create jobs for everybody. It can simply help them in some form or other for self-employment. It is true that industrialisation in the West started not with governmental but with private initiative. But the similar situation is difficult to obtain

in Indian context. Further, in recent years, jobs in government and semi-government organisations have proved to be cosy cushions. As a result, there is a mad rush for these jobs. So, vocationalisation becomes almost a failure. The only way to overcome the impasse created in the field of education in India is to opt for a different socio-economic order.



# Inequalities in the Educational Utilisation

G. S. MEHTA

*Giri Institute of Development Studies, Aliganj, Lucknow*

EDUCATION has always been accorded an honoured place in Indian society for social, economic and cultural development of the country. Education is necessary for national integration, realising the ideas of socialistic pattern of society and a source for a transformation of system to relate it more closely to the life of the people. Today rapid economic development is mostly possible through technological changes in different economic activities which increase the demand for education. From the individual point of view,<sup>1</sup> demand for education increases because it gives a chance to increase private income by way of providing cognitive skills, technical knowledge and productive efficiency among the human resources. On the other hand, the social demand for education is based on the requirements of economic development aimed to be achieved in a given

period of time. It arises due to the potential demand for trained and well-qualified manpower for different tasks to meet the objective of desired social and economic development. Social demand for education also arises from the angle of equalisation in the pattern of income distribution and consumption pattern among the population in the society.

The increase in educational expenditure in India in recent years is largely related to the social pressure for more educational opportunities particularly for the lower socio-economic group of population. The social pressures embody not only a desire for education purely considered as education but more significantly, the economic calculations of the relationship between education and higher income. Larger expenditure is, therefore, incurred in education in general as

well as for upgrading the socially and economically weaker sections of the society. Thus the magnitude of social demand for education is a function both of requirements of economic development and welfare considerations particularly for the socio-economically disadvantaged groups of population.

However, private demand for education is determined by the income levels and by individuals' own perceptions and the socio-economic status of their family. Increasing demand for education arises due to the consideration that individuals with a higher level of education earn relatively a higher amount of income as compared to individuals with a lower level of education or illiterates.

Visualising education as an important instrument for improving socio-economic conditions and bringing about a reduction in income inequalities, a great significance is attached in India to the expansion and development of educational facilities. Attempts are also vigorously made for universalisation of elementary levels of educational facilities in remote and backward areas and by providing various types of financial assistance and facilities for the population in general and special education subsidies and scholarships for the socio-economically deprived groups of population.

As a result of these efforts, significant progress has certainly been made in terms of literacy and enrolment rates in general. The literacy rates had gone up from 6.6 per cent to 36.23 per cent between 1951 and 1981. Further, the enrolment rates have increased from 42.6 to 84.50 at primary, 12.7 to 38.1 at middle, 5.3 to 20.6 at secondary and 0.8 to 4.1 at higher levels of education between 1950 and 1979-80. However, significant inequalities in the utilisation pattern of different levels of

educational opportunities are still existing between regions, men and women, rural and urban areas and among different socio-economic groups. The present paper, thus, attempts to measure the levels and extent to which the disparities are existing among the above-mentioned groups of population in the utilisation of different levels of educational opportunities.

The present study is based both on primary and secondary data. The secondary data with respect to enrolments at different levels of education in Uttar Pradesh and India for different periods were collected from various Government publications. And the primary data were collected from the identified sample of 200 households in Lucknow district. The sample was equally distributed between rural and urban areas. Of the total sample size in both the areas, equal proportions of households were identified from the scheduled castes/tribes and general castes groups. Besides, it was attempted to ensure that in each sub-sample, different income groups were well represented. In the rural sample, three villages were selected, taking into account the availability pattern of different levels of educational institutions. However, in the case of urban sample, three municipal wards of Lucknow city were purposely selected.

### Enrolments

Taking into consideration the utilisation pattern of different levels of educational facilities, as supported by the rates of enrolments, the analysis revealed that the enrolment rates at each level of education are significantly increasing in India as well as in Uttar Pradesh. However, the indices of enrolments appeared to be increasing sharply in India than in Uttar Pradesh at all levels of

education, except at the higher level of education, the enrolment rates as well as the pattern of increase in enrolments have been found to be higher in favour of Uttar Pradesh. The highest differentials in the indices of enrolments in favour of India than Uttar Pradesh are noticed mainly at the primary level of education, while these differentials are very marginally at the level of middle and secondary education in 1980-81

Further, there exists larger differentials in the enrolment rates between different sexes, as the enrolment rates of females at each level of education are relatively at lower extent than their male counterparts in India as well as in Uttar Pradesh. However, the indices of

found at the higher level of education, followed by the secondary and primary levels of education, both in India as well as Uttar Pradesh. The enrolment rates in favour of males are registered to be significantly higher as compared to females in India than in Uttar Pradesh, although the highest increase in enrolments for both the sexes are noticed in Uttar Pradesh than the national average at all the educational levels, except the primary level of education.

### Rural-Urban Differences

It has been generally believed that the

TABLE 1  
Rates of Enrolment at Different Levels of Education in India and Uttar Pradesh

Level of Education	1950-51	1960-61	1970-71	1980-81
Primary				
India	42.60(100)	62.40(146)	76.40(179)	83.10(195)
Uttar Pradesh	35.70(100)	44.70(125)	90.80(254)	65.30(183)
Middle				
India	12.70(100)	22.50(177)	34.20(269)	40.00(315)
Uttar Pradesh	11.70(100)	16.60(142)	35.70(305)	36.82(315)
Secondary				
India	5.30(100)	10.60(200)	19.00(358)	21.90(413)
Uttar Pradesh	4.80(100)	7.80(163)	15.30(319)	19.80(413)
Higher				
India	0.80(100)	1.80(225)	4.00(500)	4.80(600)
Uttar Pradesh	0.70(100)	2.30(329)	4.40(629)	6.00(857)

Source:

(i) Draft Fifth Five Year Plan 1974-79 Part II Planning Commission, Govt. of India, New Delhi

(ii) Education in India, Ministry of Education and Social Welfare, Govt. of India, 1950-51, 1960-61, 1970-71 and 1980-81

N B — Figures in paranthesis indicate index with 1950-51 as base

enrolments appeared to be increasing to a higher extent in favour of females as compared to males in the state as well as the country as a whole beginning from the year 1950-51 to 1980-81. The highest progress regarding the increase in enrolments of both the sexes was

participation of population in different levels of education has increased significantly both in rural and urban areas. However, there are larger differences in the utilisation of different levels of educational facilities between the population living in these two areas. The rural

TABLE 2

## Enrolment Rates on Men and Women at Different Levels of Education in India and Uttar Pradesh

Level of Education	1950-51		1960-61		1970-71		1980-81	
	Men	Women	Men	Women	Men	Women	Men	Women
Primary								
India	9.60 (100)	24.60 (100)	82.60 (138)	41.40 (168)	92.60 (155)	59.10 (240)	99.00 (166)	66.20 (269)
Uttar Pradesh	58.50 (100)	10.80 (100)	68.80 (118)	19.40 (180)	19.40 (180)	73.50 (681)	85.78 (147)	43.00 (398)
Middle								
India	20.70 (100)	4.50 (100)	34.30 (166)	10.80 (240)	46.50 (225)	20.80 (462)	52.10 (252)	27.10 (604)
Uttar Pradesh	20.30 (100)	2.10 (100)	26.70 (132)	5.20 (248)	53.60 (264)	14.60 (695)	53.33 (263)	18.76 (890)
Secondary								
India	8.80 (100)	1.70 (100)	17.50 (199)	4.30 (253)	27.10 (303)	10.20 (600)	29.90 (340)	13.90 (818)
Uttar Pradesh	7.60 (100)	1.00 (100)	11.00 (145)	3.10 (310)	24.60 (324)	5.00 (500)	28.60 (376)	10.80 (1080)
Higher								
India	1.20 (100)	0.10 (100)	2.20 (183)	0.50 (500)	5.70 (475)	2.00 (2000)	5.30 (442)	2.20 (2200)
Uttar Pradesh	0.60 (100)	0.10 (100)	1.80 (300)	0.40 (400)	5.30 (883)	2.40 (2400)	5.40 (900)	2.60 (2600)

## Source

- i) Draft Third, Fourth and Fifth Five Year Plans, Planning Commission, Govt. of India, New Delhi.  
 ii) A Hand Book of Education and Allied Statistics, Ministry of Education and Culture, New Delhi.  
 iii) Education in India, Ministry of Education and Social Welfare, Govt. of India, New Delhi, 1950-51, 1960-61, 1970-71 and 1980-81.

NB — Figures in paranthesis indicate index with 1950-51 as base

population mostly avail primary education and those who obtain secondary and higher levels of education are small in proportion as compared to urban population<sup>2</sup>. In rural areas, mostly those with better socio-economic background have been observed to have mainly entered the educational streams<sup>3</sup>. The studies reviewed in A Survey of Research in Education (1972) have also revealed that educational opportunity is mainly open to the better strata of the society, in general, and to the urban population, in particular.

In India, beside the high variations in the socio-economic situation of different groups of population, there are clear rural-urban differences in the uneven distribution of the different levels of educational facilities by which inequality in the participation of population in different educational systems gets perpetuated between these two areas. In rural areas, there are only Government-aided schools and institutions run by local bodies. However, educational institutions in urban areas are sufficient in numbers both in public and private sectors. In fact, the urban

population have the choice of a variety of institutions and can choose the institutions according to their capacity to bear the educational costs<sup>4</sup>. Moreover, in urban areas, the educational institutions are provided with better study facilities as compared to the educational institutions in rural areas<sup>5</sup>.

Further, the rural population have the facility of mainly elementary and middle levels of education while colleges are concentrated in urban areas. Because of the poor economic status of a majority of rural population, they cannot afford to avail themselves of the college level education in urban areas<sup>6</sup>.

Our analysis reveals that in totality, 82.43 per cent of children are enrolled in the primary

primary schooling (6-11 years) 91 per cent of the urban and 75 per cent of the rural children are enrolled in schools. The respective percentages are 84 and 52 in the 12-14 age-groups, 73 and 55 in the 15-18 age-groups, 29 and 7 in the 19-23 age-groups.

Thus, already wide differences become more acute at the higher level of education.

### Differences among Men and Women

Further, considering the utilisation pattern of education among male and female children, we find that the enrolment rates of males are significantly higher as compared to females in

TABLE 3  
Enrolment Rates of Rural and Urban Population

Age-groups (Years)	Male	Female	Total	Male	Female	Total	Male	Female	Total
6-11	81.82	65.72	74.68	91.43	91.18	91.30	86.08	78.26	82.43
12-14	52.38	50.00	51.61	95.46	68.75	84.21	74.42	61.54	69.57
15-18	65.12	16.67	54.55	71.43	75.00	73.02	67.95	57.50	64.41
19-23	13.62	—	7.47	38.10	22.00	29.35	26.59	13.75	20.13
All Groups	55.17	34.48	47.41	70.15	57.81	64.12	62.37	48.38	56.28

level of education and the enrolments are found to decline at the middle and higher levels of education in our study area. In the higher educational levels the enrolments are only one-fourth of those in primary education. Further, the enrolment rates are found to be significantly at lower order in rural areas than in urban areas. Overall, 64 per cent of the urban and 47 per cent of the rural population in the 6-23 age-groups was found enrolled in educational institutions. But the differentials between rural and urban areas widen as we proceed from the lower to the higher age-groups. At the groups corresponding to

all the age-groups in rural as well as urban areas. The females are found to be enrolled mainly from the age-groups of school level education. While for the age-group 19-23 years (higher education) the enrolment rates are only one-half of the enrolment rates of males. Further, the enrolment rates of females from different age-groups are relatively at lower order in rural areas than in urban areas. In rural areas the enrolment rates of females are 65.52 per cent in the age-groups 6-11 years, 50 per cent in the age-group 12-14 years and 17 per cent in the age-group 15-18 years, while no female is enrolled from the 19-23



age-group. The enrolment rates of females in respective age-groups in urban areas are, 91.18, 68.75, 75.00 and 22.00. Similarly, the proportions of enrolments of rural males also lag behind urban males in all school going age-groups. The enrolment rates are thus consistently lower for females both in rural and urban areas, and in different age-groups, but they are particularly so in rural areas in the above 14 years of age-groups

### Differences among General Castes and Scheduled Castes/Scheduled Tribes

The studies carried out during the recent past have found that there are glaring inequalities in the enrolments at different levels of education among castes, particularly between the scheduled castes and higher castes<sup>7</sup>. Even among the population of a particular caste group, the population with higher income groups or having relatively better socio-economic background are better off as compared to the rest in the utilisation of educational opportunities<sup>8</sup>. The studies reveal that the SC/ST population, either living in rural or urban areas are mainly enrolled in the school level educational systems while their strength in higher or professional level education is negligible or rather low<sup>9</sup>.

In our sample study, we find that the

enrolment rates of the general caste population are significantly higher as compared to the SC/ST population. These differences become more marked as we proceed from the lower to the higher age-groups, corresponding to the lower and higher level of education. The overall enrolment rate of the SC/ST population in the age-group 6-23 years is 48 per cent as against 66 per cent of the general caste population. But in the age-group 16-18 years the SC/ST enrolment rate is 55 per cent as against 77 per cent of the general castes and in the 19-23 age-group the percentage for the former is 9.5 and for the latter, it is 32.

The enrolment rates of the girls from the general and SC/ST castes are always lower than their males counterparts in all levels of education<sup>10</sup>. But the girls from the general castes have a much higher overall enrolment rate of 59 per cent as against 40 per cent of the girls from the SC/ST groups. Very small proportions (8.79 per cent) of the girls from the SC/ST groups as against (20.67 per cent) of the general castes were found in higher educational levels. Differences in male enrolments were sharper at the higher level of education, where only 10.5 per cent of the SC/ST boys as against 41.5 per cent of the general caste boys in the age-group 18-23 were found enrolled.

TABLE 4  
Enrolment Rates of General Castes and SC/ST Population

Age-groups (Years)	General Castes			SC/ST		
	Male	Female	Total	Male	Female	Total
6-11	90.24	87.50	89.04	81.58	70.27	76.00
12-14	83.33	76.92	80.00	70.91	46.15	63.64
15-18	82.35	66.67	76.92	56.82	50.00	54.55
19-23	41.46	20.67	32.00	10.53	8.70	9.52
All Groups	71.86	58.77	66.23	54.31	39.83	47.96

Differences in enrolments between these two groups are found sharper in rural than in urban areas. Particularly at the higher level of education this clearage is highly noticeable in rural areas. Of the persons in the 19-23

We have made an attempt to find out the relative position of the pattern of enrolment among different per capita income groups on the basis of our sample study. The enrolment rates of school-going-age population are

TABLE 5

**Enrolment Rates of General Castes and SC/ST Population in Rural and Urban Areas**

Age-groups (Years)	Urban		Rural	
	General Castes	SC/ST	General Castes	SC/ST
6-11	94.29	88.24	84.21	65.85
12-14	92.31	80.00	66.67	42.00
15-18	88.89	61.11	64.00	46.67
19-23	41.67	15.91	14.81	2.50
All Groups	72.36	56.83	58.82	34.46

age-group 15 per cent of the general castes and only 2.5 per cent of the SC/ST groups are enrolled. The differences, though significant, are of a lower order, the rates being 42 and 16 per cent, respectively.

**Differences among Income Groups**

The economic condition of a family is an important factor influencing the aspiration and ultimate educational attainment of its members<sup>11</sup>. The Education Commission (1964-66) noted that children from poor families do not have the same chances of education as those who come from richer ones. Therefore, children of poor families are mostly out of the school system from the very outset and majority of them are illiterate. One of the reasons for this phenomenon is that the utilisation of educational opportunity is mainly dependent on the individual's capacity of bearing the educational costs<sup>12</sup>. It is for this reason that the benefit of the education system, especially secondary and higher education, is found mostly going to the economically well-to-do population of the society<sup>13</sup>.

related with the per capita income groups of households. Across six per capita income groups, starting with less than Rs 1500 and ending with Rs 6000 and above, in which the sample households were divided, we find a consistent positive relationship between PCI levels and enrolment rates. At the lowest PCI level 36 per cent children are enrolled and at the highest level the former reaches 75 per cent. Thus the utilisation of education is clearly seen associated with the level of per capita income of the family. This relationship is consistently observed both in rural and urban areas. In rural areas the enrolment is low at 26 per cent at the lowest PCI group, but increases consistently with PCI and goes up to 67 per cent at the highest PCI level. In urban areas the corresponding increase is from 51 per cent to 76 per cent with increase in the PCI levels.

The relationship also holds, even to a more significant extent, in the case of enrolment of girls. The range of consistent variation of enrolment with PCI in the case of boys, is from 43 per cent at the lowest to 77 per cent at the highest PCI level. But in the case of girls it is as

TABLE 6  
Enrolment Rates of Rural and Urban Population by PCI and Households

PCI of Households (000 Rs)	Rural			Urban			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Below 1.5	333.34	18.52	26.67	61.12	41.18	51.43	43.14	27.28	35.79
1.5 - 2.5	65.91	20.00	49.28	64.00	48.89	56.85	64.90	38.58	53.66
2.5 - 3.5	62.07	53.34	59.09	81.49	42.86	68.30	71.43	48.28	63.53
3.5 - 4.5	58.07	46.16	54.55	71.43	75.00	73.34	62.23	62.07	62.17
4.5 - 6.0	50.00	83.34	66.67	71.43	77.78	75.00	65.00	79.17	72.73
6.00 and above	50.00	100.00	66.67	81.82	72.23	75.87	76.93	73.69	75.00
All Groups	55.17	34.48	47.41	70.15	57.82	64.12	62.37	48.38	56.28

low as 27 per cent at the lowest, rising steeply with the increase in PCI, and reaching 74 per cent at the PCI level of Rs 6000 and above. This greater steepness of rise in the enrolment of girls with every increase in the PCI level equally true in rural and urban areas, but is more marked in the case of rural areas.

Analysing the enrolment rates of the SC/ST groups of population according to the PCI level of households, we find that the relationship is somewhat diffused. Of course, the relationship

castes, enrolment in the highest PCI group (Rs 6000 and above) is lower than in the PCI group of Rs 4500-Rs 6000 and Rs 2500-Rs 3500, the highest being in the case of the latter PCI group. Yet, overall, the enrolment rate rises with the PCI levels. In fact, the influence of income level on enrolment comes out more sharply in the case of the SC/ST groups than the general castes, particularly when we consider the enrolment rates for males and females and rural and urban areas separately.

TABLE 7  
Enrolment Rates of General Castes and SC/ST Population by Level of PCI in the Households

PCI of Households (000 Rs)	General Castes			SC/ST		
	Male	Female	Total	Male	Female	Total
Below 1.5	58.83	38.10	47.37	35.30	17.40	28.07
1.5 - 2.5	71.43	36.37	59.38	63.02	35.99	52.28
2.5 - 3.5	90.33	60.00	80.44	48.00	35.72	43.59
3.5 - 4.5	61.77	70.59	64.71	63.64	50.00	56.53
4.5 - 6.0	66.67	80.00	73.69	50.00	75.00	60.77
6.00 and above	85.72	61.54	70.00	66.67	100.00	83.34
All Groups	71.88	58.77	66.23	54.31	39.83	47.96

is more consistent in their case than in the general castes in-so-far as the highest enrolment rate among SC/ST is found in the highest PCI group; while in the case of general

### Conclusion

The enrolment rates of both men and women have increased considerably at

different levels of education both in the state and the country as a whole since 1950-51, though relatively higher in favour of men than women but at lower extent in Uttar Pradesh as compared to India. Overall, the enrolment rates are significantly higher for men (62 per cent) than for women (48 per cent). And these differences increase consistently in favour of men, if we proceed from the primary, middle, secondary and higher levels of education. Further, the enrolment rates are much higher both for men and women in urban areas as compared to rural areas and these differences increase remarkably higher at higher level of education. Over and above, women are found availing themselves of the facility of school level education.

The population belonging to the SC/ST

group is found participating in different levels of education to a relatively smaller extent than the general caste population. These differences become more marked as we proceed from the lowest to the relatively higher are-groups, corresponding to the primary and higher level of education. Relating the enrolment rates with the household income levels, the analysis revealed that the enrolments increase with the income range both in rural and urban areas. However the differences in the enrolment rates between the lowest and the highest income groups are much higher in rural than urban areas. By and large the effect of income levels on the utilisation of educational opportunities, in terms of enrolments, is more prominent in the case of women and rural population groups

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# Structural Complexity of Thought of Secondary School Students : Evaluation Through Questionnaires Devised on the Basis of the SOLO Taxonomy

BANI BHATTACHARYA

*Department of Humanities and Social Sciences, Indian Institute of Technology, Kharagpur*

**R**ECENT research in the field of academic learning places greater emphasis on qualitative evaluation rather than the quantitative aspect of 'how much is learned'. In practical life, however, the tradition of quantitative evaluation has been difficult to overcome. In cases where depth of understanding is sought to be measured through qualitative evaluation, the criterion of evaluation is usually a personal criterion of the examiner such as 'elegance' or 'economy' of an answer. Such evaluation varies from examiner to examiner (depending on what he considers to be 'elegant') and is essentially

subjective in nature. In order to overcome such drawbacks, a mode of evaluation should include within itself a scope for assessing the quality of responses in an objective fashion.

The Structure of Observed Learning Outcome (SOLO) principle of evaluation proposed by Collis and Biggs (1979) provides an opportunity for such evaluation.

## Theoretical Basis of Questionnaire Formulation

\*The objective of this study was to use the

principle of the SOLO Taxonomy to design sets of tests in English and History for secondary school students in India. The tests aimed at gauging the depth of understanding of the students in these subject areas. Not unlike natural sciences, in History also, events are placed in an explanatory context. The general procedure in devising/answering SOLO questions is the same, i.e., defining the component, analyzing the structure of the response in terms of the way in which the components interrelate and arriving at an underlying message if possible. The only difference between history and the natural sciences is that in history, the concepts explaining the events are colligatory rather than casual. Thus, like the tests in the science subjects (Bhattacharya, 1990), the questions in History were all closed-ended ones in the superitem format (Cureton, 1965) with a paragraph (stem) followed by four questions (items) arranged hierarchically in terms of increasing structural complexity. In English, however, only one question (comprehension) followed the superitem format. An open-ended question consisting of essay-writing was included to assess the creative writing capabilities of the students (Biggs and Collis, 1982b), while appreciation of poem was sought to be evaluated by presenting a poem and asking 'what does this poem mean to you' (Mason, 1974).

### Methodology of Questionnaire Formulation

#### History

A group of ten secondary school teachers was asked to decide on the actual area in history on which the superitems would be constructed. The content area chosen in history consisted of:

- (i) Indus valley civilization
- (ii) Sepoy mutiny

#### (iii) The Independence movement of India

A series of superitems were constructed in the three areas in history by the ten teachers.

#### English

In English, a consensus was reached by the teachers regarding the appropriateness of the poem selected, the topic of the essay as well as the difficulty level of the comprehension superitem.

#### Content Validation

After the construction of the superitems and the open-ended questions in English, a group of 20 school teachers was asked to go through them to ensure that they were indeed within the syllabi of schools concerned and to judge the superitems on three aspects to establish their content validity:

- (i) Content area
- (ii) Reasoning levels of comprehension, application, analysis (Wearne and Romberg, 1977)
- (iii) SOLO categorization (Biggs and Collis, 1982a)

A high level of agreement was found to exist in all the three domains in both History and the closed-ended superitem in English.

In the case of the two open-ended questions in English, however, the content validation method as elaborated by Mason (1974), Biggs and Collis (1982b) was followed.

To check the SOLO categorization of the two open-ended items in the English test, the test was administered to a group of 54 Class X students. The response sheets were photocopied and sent to 20 different teachers to be graded according to the SOLO categories. The agreement between the teachers regarding this categorization was found to be high in both the questions.

In the 'Appreciation of poem' question, responses might or might not have included

various structural and intellectual elements like rhyme, rhythm, literal or metaphorical meaning inherent in the poem, integration of intellectual and affective aspects of the poem, etc. The presence or absence of these features was used to judge the SOLO level of a response.

The criteria used to judge the answer were:

**Unistructural:** Existence of one relevant structural feature like a comment on the rhyme, a concrete point used by the poet or even verbatim repetition of a part of the poem in the response.

**Multi-structural:** One or more substantive points together with a comment on a structural aspect of the poem, involving substantial interpretation of independent points.

**Relational:** A coherent framework for interpreting most or all of the poem, but limited to the context set by the poet.

**Extended Abstract:** The poet was seen as making universal statements using the poem as a medium, with scope for alternative explanations and an appeal to abstract structures not necessarily inherent in the text.

"Creative Writing" implies on "open-ended prose or poetic construction, based on a topic, the purpose of which is self-expression by the writer" (Biggs and Collis, 1982a; Biggs and Collis, 1982b). In a piece of creative writing, the components of composition, and transcription processes may be present or absent; these components may also be interrelated or unrelated to other components. Based on this presence-absence criterion and degree of interrelatedness, the responses can be classified into the levels of the SOLO Taxonomy. Importance is also given

to the overall shape of the work (Macro planning), expertise in sentence construction (Middle planning), and conciseness of expression (Micro planning) [Bereiter, Fine and Gartshore, 1978].

The specific criteria in judging this question were:

**Unistructural:** The response included a single component like sequencing in time. Writing was linear and use of the spelling and syntax was minimal.

**Multi-structural:** The response included appropriate use of spelling, punctuation, syntax and a sufficiently clear and descriptive story line. But writing was conventional and had a flat story line.

**Relational:** The response included a novel and calculated effect within the story line — brought about through the flexible integration of the components of writing. The perspective of the reader was taken into consideration but the content remained within the context chosen by the writer.

**Extended Abstract:** The response included two extra features over that of the relational level. (i) recognition of different layers of meaning beyond the chosen context, (ii) innovative use of the medium to convey multiple meanings.

Based on the teacher's judgement, the number of superitems/questions in each subject area were finally decided on as English : 3; History : 5.

Feedback from the 54 students who initially answered the tests, prompted the rectification of certain language problems. The superitems in each subject area were then assembled in

the form of booklets in the standard group testing format with student identifying information (name, age, sex, etc.) on the first page. The final form of the tests was then administered to 268 secondary school children in and around Kharagpur.

The SOLO scores obtained in each school subject area showed a near-normal distribution as shown in Table 1.

technique of KR 20, as modified by Cureton (1965) for item questionnaires. The KR 20 values for all subjects and the values for the correlation of observed and true scores are given in Table 2.

The reliability coefficients were comparable to those of previous studies in questionnaire development using the SOLO principle (Collis, 1983; Collis and Davey, 1984

TABLE 1

Subjects	Mean of scores	SD	Skewness	Kurtosis
English	5	1.9	0.25	0.330
History	10	2.9	0.5	0.272

### Construct Validation

The tests would be deemed to possess construct validity only through establishing their :

- (a) reliability, and
- (b) conformity to the 'Guttman-true-type' pattern.

To determine the Guttman true-type

and Collis et al, 1986).

### Ordering of Responses According to the Guttman Pattern

Since the structure of the SOLO Taxonomy is a hierarchical one, it conforms to the Guttman scale (Guttman, 1941). Any pattern of response structure which does not conform to this

TABLE 2

Subjects	Reliability Coefficient	Correlation of Observed and True Scores
English	.97	.98
History	.86	.93

pattern (Guttman, 1941), the coefficient of reproducibility and chi-square values (which are indicative of the goodness of fit of the observed response patterns to the expected ones) were calculated.

### Reliability of the Questionnaires

The reliability coefficient for each subject was separately calculated, using the split half

Guttman true-type pattern is considered an 'error'. The indices used to determine whether student responses conformed to the Guttman true-type pattern were :

- (i) Coefficient of reproducibility ( $r$ )

$$r = 1 - \frac{\text{total no. of errors}}{\text{total no. of responses}}$$

- (ii) Chi-square based on goodness of fit [van den Wollenberg Q test of fit (1982)]



between the observed distribution of response types to predicted ones. (Collis, 1983, Collis and Davey, 1984; 1986). This was considered sufficient evidence

TABLE 3

**Coefficient of Reproducibility (r) and Chi-square in Different Subjects for Confirmation of Guttman Response Patterns**

Subjects	Item no.	(r)	Chi-square	df
English	1	.95	99	40
	2	.95	61	
	3	.96	66	
History	1	.96	86	72
	2	.95	68	
	3	.95	61	
	4	.97	39	
	5	.94	42	

[ Chi-square values based on goodness of fit test of van den Wollenberg (Masters and Wilson, 1988) not significant at < .05 ]

The values of r and chi-square are given in Table 3. In order to be considered a true Guttman type one, an item must have an r value > .85 and chi-square not significant at the .05 level. The results here satisfy these criteria and are in good agreement with those of similar work previously done in this area

that the superitems were indeed Guttman true-types.

#### *Clustering of Students in SOLO Levels*

For each of the two school subject areas, student responses were grouped in clusters

TABLE 4

**Per Cent Correct Responses at Each SOLO Level Clusters**

SOLO Level Attained	No. of Students	% of Correct Responses in Each SOLO Level			
		U	M	R	E
Subject : English					
R	15	100	100	100	0
->R	32	100	100	50	0
M->	30	100	100	20	0
M	88	100	100	0	0
->M	42	100	33	0	0
U	61	100	0	0	0
R->	2	100	100	100	20
R	37	100	100	0	0
->R	31	100	100	80	0
M->	22	100	100	40	0
M	110	100	100	0	0
->M	37	100	60	0	0
U	29	80	20	0	0

->M denotes tendency to approach M level from U level

M-> denotes tendency to go beyond M level towards R level (transitional stages)

The average score in each cluster, as well as the percentage of correct responses and the size of each cluster is reported in Table 4.

The clusters are also labelled into the four basic SOLO categories (U,M,R,E) as well as transitional stages between categories. The number of cluster groups vary between seven and six, depending on the subject area concerned. Though students of this age-group are expected to function at the 'R' level, it can be seen that in both the subjects, the largest fraction of students is clustered in the M-U levels.

In the case of English, schools in India teach it as a second language with an emphasis on communication skills involving vocabulary and grammatical construction of the language. This emphasis inhibits the development of a sense of integration in most students and thus results in a majority of 'M' level responses. Though everyone agrees that creative writing is important, it is not adequately treated in schools. In the case of poetry, it has been found that the affective impact of the poem is most important and cognitive judgements are constructed upon this affective foundation (Biggs, 1982). However, very little is done in most schools to develop such a sense of literary appreciation. Further, teachers and educators tend to forget that study of literature gives access to the intimate operations of the mind (Learies, 1944). A second language is likely to emphasize communication and proficiency rather than general language education and transfer (Stern, 1984). Literature is one of the most effective ways of training people to think clearly and form independent judgments (Gatherer, 1990). It is a sustained context of communication where comprehension at one point has consequences for comprehension at

other points.

In the case of History, we find that in recent times, the study of the subject is considered more as a 'mode of knowledge' involving understanding, use of evidence to interpret an event and analysis of its implications. In such a context the study of history and other humanities subjects becomes important not only in itself, but also in its role of training the mental process of the student towards the rational analysis of the content. In humanities subjects, unlike the natural sciences, such reasoning is tied through its premises to the evidence. There are no special intuitive powers at work here — only hard thinking on the basis of evidence available.

This concrete nature of the subjects should thus be an ideal starting point for developing structural complexity of thought which can later be transferred to more conceptual or abstract subjects like the natural sciences and mathematics.

Improvement in teaching procedures should, therefore, be geared generally towards incorporating exercises in externalizing and expressing oneself clearly, bridging past and intended content, and specifically towards developing an appreciation of literature as well as putting more emphasis on subjects like history that has a concrete base of information. This should help in generally enhanced levels of structural complexity of thought processes and result in producing higher level SOLO's.

In conclusion, it may be said that the purpose of developing the two tests in English and History has been satisfied. Their reliability, content and construct validity have been established, and, clusters could be formed that were interpretable in terms of the principle of the SOLO Taxonomy.

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# Teaching for Excellence : The Indian Approach

ARUNIMA VATS

*Department of Education in Social Sciences and Humanities,  
National Council of Educational Research and Training, New Delhi.*

ONE of the fundamental aspirations of human civilization is a quest for excellence. India is one of those countries which promoted excellence since the dawn of civilization. The desire for excellence prevailed every aspect of Indian life. Education was considered as an essential tool to explore and promote excellence in different areas. Learning and knowledge were much valued attributes and were considered essential for self-discovery and self-realization. The philosophy of education was not different from the philosophy of life. The ultimate aim of all philosophies of education was to free the mind from encumbrances which hinder its progress towards perfection.

The system for providing education to the child was known as the *gurukula* system which

is the most significant contribution of India to the field of education. Education aimed at harmonising relationship between man and nature. The system was capable of developing scientific temper and nurture it in the fertile and imaginative company of nature. The assumptions underlying were learner-centered which focussed on intrinsic motivations. High standards of scholarships were maintained. Education was for the training of the mind. The ancient Indian teachers thought that the mind is the sixth and internal sense. It was assumed that the whole mind takes part in education and is not merely a store-house of facts but a dynamic growth with hidden potentialities and freedom. Therefore, the aim of education was to awaken intelligence in a way that the child develops sensitivity of the heart and openness of the

mind. It was not the subject matter which was important but the way of learning which was important. The teachers stressed that the mind according to nature must effect itself before the transcendent mind, which is the only true mind. The students were taught the principle of *Chitta, Vritti, Nirodha*, i.e. cessation of all mental activities through *Yoga*. Therefore, *Yoga* was an integral part of the curriculum. The concentration power of the mind developed through *yoga* made it hard and sharp so as to give it perforating powers. The education, therefore, was for the training of the mind and not simply to fill it with the objective knowledge.

Science of education was based on interdisciplinary assumptions. Biological factors were taken into consideration while planning the teaching strategies and curriculum. Much importance was given to sensory experiences the child should have. The teachers were aware that the child's contact with the world is through senses. Among the senses, the first to respond is hearing. After that comes touch, sight, taste and smell. Therefore, some Vedic hymns speak of developing *Shravana* (hearing), *Sparasha* (touching), *Rupa* (seeing), *Rasa* (tasting) and *Gandha* (smelling) in the young child through education. It was assumed that it is in hearing that the basic factors of learning lie. But in hearing two factors are essential, the one who hears and, also the one who speaks. While the hearing was to be done by the pupil, the speaking was the function of the teacher, hence the oral tradition of imparting education. It is mentioned in the *Mandukya Upanishad* that both hearing and articulation processes are required for information-processing in the brain. It also helps the child in making correct pronunciation. Similarly, the students were provided sensory experiences to develop their capacities to smell, taste, touch and see. It should be

emphasized here that the development of all the senses took place in natural environment and the students were required to learn and explore whatever was taught by the teacher. Besides, *Shravana* (hearing), *manana* (assimilation by deliberation or reflection on the thought), and *nidhidhyasana* were followed to attain the knowledge. Whatever the teacher said was heard by the student followed by the process of its assimilation. Learning was to be completed by the third step, i.e. meditation or *nidhidhyasana*, leading to the realization of truth after its intellectual apprehension. The *Shrutis* (ancient Indian texts) say 'hear' and subsequently add, 'reflect and meditate'. The end reached by reflection and meditation is distinct from that which is obtained through hearing.

Generally, after teaching alphabets at home, the child was introduced at primary school to *Sabda-vidya* (Learning of words) which literally means phonology and implies mainly grammar. The object was to impress at the outset upon the student's mind, "the idea of scientific method, order, principle and system of rule". In Indian tradition of education the alphabets are considered the most advanced medium of education. They are regarded as the route to all knowledge. In one of the *Shalokas* of *Taittiriya Upanishad*, the teacher tells his students:

We shall now explain the science of pronunciation, the letters, the pitch of the sound, or accent, the length of measure, the effort or strength (in the utterance of the words), modulation and conjugation or continuity. Thus has been explained the chapter on the science of pronunciation.

The general scheme of studies was planned to teach language at the age of 6; elementary grammar at the age of 8, *Sutras* of Panini at 10, books on grammar and composition at 13; laws of universe including elementary science, history and mythology at 15; composition in verse and prose at 16; for four years logic,

metaphysics, Veda, Vedantas at 20; specialization in one of the professional *Vidyas* like medicine, etc. at 22.

After acquiring the necessary knowledge of language and literature, logic was taught which developed the reasoning faculty. *Silpa Vidya* or science of arts and crafts was taught which inculcated in the students an aesthetic sense and practical skill regarding symmetry, proportion and beauty. Poetics were taught because it is considered the essence of all aesthetic experiences and proper emotional development. Music was taught which comprised music of voice modulation, sound variation, and time regulation. The poetics and music taken collectively are attempts to strike a rhythm between man and his aspirations expressed in words, gesture or in sheer sound. In other words, the rhythm between the inner and the outer universe.

Various types of sciences were included in the curriculum. For example, science of reasoning, mathematical sciences, military sciences, medical sciences, astronomical, astrological, prosody and geographical and philosophical sciences, etc. The list is elaborate. The remarkable thing about science teaching in India was that intuitive capabilities were required and developed to understand, explore and investigate. In fact, learning of science was considered manifestation of inner feelings which produced curiosity in the child. Science teaching was blended with humanistic qualities, and teaching of humanities had scientific approach. An analysis of the list of subjects taught reveals that education was liberal and did not put different subjects in water-tight compartments. On the contrary, they were intermingled so that a student came to an integral understanding of life. Emphasis was placed on practical education and character-building. A set of external aids to knowledge was also formulated to supplement these inner disciplines and process and to

strengthen the moral foundation for the pursuit of knowledge.

The student was supposed to stay with the teacher and his education was a whole-time process. They were supposed to tend to the teacher's cattle and house, besides learning *Vedas*, *Upanishads* and various other branches of philosophy, humanities and sciences. Such education gave them training in self-help, in dignity of labour, love for animals and in the industry of rearing cattle and dairy farming with added advantages of outdoor life and robust physical exercise. Thus, the students could learn various subjects very naturally. This approach not only made the learning a continuous process but also eliminated curriculum load. It also indicates that devotion to teacher, obedience, discipline and work experience occupied the first place and mere book learning was of minor importance. This also provided for the acquisition of information by the learner on the basis of practical experiences. It aimed at the development of inherent potentialities and through work the awareness about nature and world. It also assumed that emancipation is the result of *Karma* (work) added by *Vidya* (knowledge). It is possible that work, when aided by *Vidya* acquires a power to generate a new effect.

There were arrangements to provide vocational and technical training as well. The *Millindapanha*, an ancient Indian text, contains a remarkable account of the curriculum of studies according to the requirements of the various categories of the students. But, it was emphatically stated that the students should acquire proficiency both in theory and practice. This helped in the development of independent thinking. The question-answer method of teaching was used. The teaching techniques were democratic and innovative which helped in the development of reasoning abilities. The teachers

appreciated the intimate relationship between thought, reasoning abilities and problem-solving and, therefore, taught the students to develop these abilities.

From this description it is clear that in the ancient education scheme of studies, all-round excellence was the focus. Excellence was not judged on the basis of intellectual superiority and competence alone. It included power to concentrate, personality, aptitude, aesthetic ability, emotional development, work efficiency and a host of other variables. It implied highest standards in every phase of life, in every kind of creative endeavour. Quality education was offered to the students in the most productive form.

With changing times and socio-cultural demands, the concept of excellence has also changed, because the concept of excellence is molded according to the requirements of a society at a particular time. Whatever be the criteria for excellence, achievement, competence and quality of education have always remained essential qualifications. In the field of education, quality means to develop the full capacities of the learner and to support the unfolding of the individual potential. While achievement and competence are individual attributes, the concept of quality is related to the teaching strategies and nature of the curriculum. Therefore, teaching and curriculum become essential factors for promoting excellence.

In the present time, a rigorous, usually standardized curriculum to which all learners must adjust is judged the best way to achieve quality. A standardized curriculum cannot meet the demands of all individuals. Curriculum planning is the process of generating and selecting information to develop learning experiences and learning experiences will be different for different individuals. Therefore, the curriculum needs flexibility. It becomes all the more necessary

when the concern of education is excellence. From this concern for excellence emerges a new area for investigation which calls for an alternative and innovative approach to curriculum planning. Evaluation and teaching also need changes. These days competencies are measured by achievement tests, entrance examination and measures of competency in basic skills. Whereas, to promote excellence, the students should be provided the highest quality education. We should decide levels of achievement, because we are entering into a period of new opportunities which should aim at excellence. A society that acknowledges excellence, can strive for the achievement of this goal. Therefore, we should plan teaching strategies as well as curriculum that can guide all students towards successful realization of their own potential and support their individual goals. The nurturing of the cognitive skills and productive thinking should assume a central place in the curriculum. The problem-solving methods of teaching can be of substantial help to the students in learning. Training of these skills should not be subordinated to the over-riding demands of subject matter acquisition, as at present, but should be dealt with directly. What we need in short is a curriculum which nurtures productive thinking and is coordinated with the other more traditional content-centred curricula. Organised and intelligent fulfilment of normal instincts is considered an essential factor in the growth of personality. When an individual is allowed to grow according to his own unique law of becoming, he can achieve excellence.

It is assumed that the ancient Indian approach of curriculum planning with flexibility and its emphasis on the development of the mind, instead of providing information only, can solve the dilemma between teaching the regular curriculum and providing the enrichment experiences.

Therefore, an innovative step in curriculum designing can be to explore a wide variety of alternatives. The curriculum should be so designed that it emphasises the assimilation of ideas, self-discovery, character-building and development of human intuition. Humanistic qualities for the all-round development of the individual and to excel in the worldly affairs are very essential. It helps to attain physical, scientific as well as spiritual well-being through knowing, feeling, exploring and realizing through avenues of knowledge. The feelings are basic to creative learning and need to be considered while planning curriculum.

The present educational system can draw the humanistic qualities embedded in the ancient scheme of studies. It is true that in the modern civilization of colossal urbanization we cannot have the *gurukula* system in the form and structure in which it existed in an age where the tempo of life was slow. But if we cannot reproduce the form, scientists can certainly design the system on that pattern. This doctrine is eminently pedagogical and socially sound. It provides adequate satisfaction for all stages of physical and psychological development. Monitoring programmes on the pattern of *guru-shisya* relationship in Indian educational traditions are being tried out in various countries and it has been found that these can contribute significantly to the development of independent thinking, creativity and imagination. These programmes can help in removing one of the glaring defects of the present-day educational system, i.e. the complete lack of personal touch between the teacher and the student. Monitoring

programmes can also help in developing discipline, obedience, appreciation of human relations and self-sufficiency. These are the important variables of 'hidden curriculum' which can definitely contribute towards excellence. Behavioural scientists now have realized that it is more economical to initiate students in self-directed learning which they call inquiry approach. Because of the exploding information it is also essential that the students are presented with broad-based issues and integrate a number of disciplines into related areas. The focus on excellence can help formulate the framework on which the future of society may well rest. This means serious attention to curriculum planning so as to provide broad opportunities for different kinds of intellectual activity, development of natural instincts and awareness while making the content seem relevant to the learners. It is also essential that excellence should not be judged just on the basis of achievement tests, entrance examination and measure of competencies in basic skills. Excellence also means the development of natural instincts and emotions which cannot be measured by tests. Tests should not be the deciding factors as far as excellence is concerned. Instead, curriculum should be able to provide for the use of natural instincts and impulses in self-development, in providing fruitful experiences, development of feelings, aesthetic sensitivity, and power to concentrate, analyse and assimilate. This will help them in becoming efficient problem-solvers with fine human qualities. And that is precisely what excellence is all about and also the requirement of future society.



# Sex Bias in the Classroom : A Teacher's Perspective

(DR) RADHA MOHAN

*Stella Maritima College of Education, Madras*

**S**EX bias in education is universal. In any country of the world one finds some differentiation of schooling and higher education according to the sex of the learner. But, it is also noteworthy that in the last decade, there have been attempts in most states, if not all, to reduce this bias, and to improve the access of females to education.

An analysis of the literacy levels by age brings out more sharply the education gap that exists between boys and girls in the country. Data on the number of pupils attending

schools in India by age indicates that roughly 68 per cent of the girls in the age-group of 5 to 9 years are out of school as against 56 per cent

In the subsequent age-group, 10 to 14 years, a large proportion 63 per cent of girls are not in school, while only 38 per cent of boys fall into this category.

The rural urban differentials here are even larger with nearly 70 per cent of girls in the rural areas remaining outside the stream of school education, in both the age-groups.

Taking the case of Tamil Nadu, in the age-

**Enrolment in Schools—1981 (Women in Tamil Nadu — A Profile, 1986)**

Per Cent						
Age-group		5-9			10-14	
	Male	Female	All	Male	Female	All
India	44.3	32.3	38.5	62.1	37.5	50.5

group of 6-11 years, for example, it is stated that 98 per cent of the estimated school-age population is enrolled in schools; of these, 47 per cent are girls. However, the proportion of school-age population in school declines sharply in the subsequent age-groups

The proportion of girls in total enrolment also declines in these two higher age-groups, suggesting a higher drop-out rate at these stages. Girls are probably drawn out of the system to undertake domestic work, it may also be due to lack of motivation and interest. Lack of motivation in its turn, is due to various factors such as upbringing, false values, misleading impressions, differences in education and the existing social patterns of life and human behaviour. Thus, most girls are brought up with the idea that marriage is their goal in life, all other things being secondary. In rural areas, there is a general belief that it is difficult to find suitable bridegrooms for educated girls.

The weaknesses in the system come out clearly when we find that while 47 per cent of the students in primary schools are girls, this proportion drops to 39 per cent in middle schools and to 35-36 per cent in secondary schools.

Women's participation at higher levels of education is still low in many areas. Only in some professional courses, like medicine, it is around half the total intake. One of the drawbacks to women in the matter of higher education is sex itself. Being of the female sex is reason enough to be discriminated against, both within the family circle and outside in the society when it comes to educational and job opportunities.

### Implications of Sex Equity

Sex equity implies two things:

- i. activities designed to meet the special needs of females or males;
- ii. activities designed to decrease sex-role stereo-typing

Disparities between the sexes have

decreased significantly in a number of areas, in other domains, disparities have persisted at about the same levels, or have shifted gear, to become more subtle, but equally insidious. The greatest recent improvements for women have been made in athletics; while greatest sex disparities continue to exist in the non-traditional vocational courses, in the physical sciences, and in engineering

### Classroom and Sex Bias

Classrooms are not isolated and autonomous settings. Rather, each class and its inhabitants are in constant interaction with the social contexts in which they are embedded. The influence of family life, social class, political and social ideologies reach the school directly each day through students and parents, teachers and administrators. Classroom life, therefore, is very much shaped and constrained by the norms, values and traditions of the school; likewise, the school is an integral part of the community which surrounds it. Each of these social systems — classroom, school and community — has its own structural arrangements, cultural idioms and functional purposes, but each is also greatly influenced and sustained by the others.

Consideration of a few common classroom situations reveals the existence of sex bias therein.

i. Although girls start reading and basic computation ahead of boys in school, by the time they leave school, boys have higher scores on standardised tests (e.g. more boys apply for and qualify in the National Talent Search Examinations than girls).

ii. By high school, some girls become less committed to careers, although their grades and achievement scores may be as good as boys'. Many girls' interest turn to marriage or stereotypically female jobs — typing, teaching, nursing.

A pattern of female 'undereducation' emerges, starting from the premise that the social and economic outcome of women's education are shaped by sex-gender systems that place women in subordination to men. Women provide the services and men exploit them. Women are the secretaries, teachers and domestics and men are the bosses, doctors, engineers and foremen.

iii. Girls are less likely to take mathematics and science courses and to participate in special programmes in these subjects, even if they have a talent for them. They are also more likely to believe that they are incapable of pursuing mathematics and science in college and to avoid these subjects.

iv. If a boy calls out in the class, he gets teacher attention, especially intellectual attention. If a girl calls out in the class, she is told to raise her hand before speaking.

v. Most teachers claim that girls talk more than boys. But research evidence (Joffe, 1970) implies the reverse. Stereo-types of garrulous and gossip women are so strong that teachers fail to see this communication gender gap even when it is right before their eyes.

vi. Girls are often shortchanged in quality as well as in quantity of teacher attention. Studies on classroom interaction at the pre-school level reveal that teachers gave boys more attention, praised them more often and were at least twice as likely to give male students detailed instructions on how to do things for themselves. With female students, teachers were more likely to do it for them instead. This resulted in boys learning to be more independent, girls more dependent (Hartley, 1959; Kagan, 1964; Seward and Williamson, 1970; Silberman, 1970).

Years of experience have shown that the best way to learn something is to do it yourself, classroom chivalry is not only misplaced but is detrimental to effective learning. In several schools, the electrical gadgets/carpentry instructors assign boys to challenging tasks, such

as fixing the brakes, while girls are assigned to simple tasks such as replacing headlights. This sort of discrimination in schools should stop. Vocational educators should realise that the entire technical area must be open to high school girls. There is no question that they cannot do the work, if asked.

vii. Teacher reactions to pupil response can also be an important factor in shaping behaviour. Here is a typical scene in an eighth standard classroom.

Teacher: What is the capital of Gujarat, Hari?

Hari: Ahmedabad.

Teacher: Which is the largest city in Gujarat, Hari?

Hari: Ahmedabad

Teacher: Good!

But Ahmedabad is not the capital. The capital is named after the Father of the Nation.

Want to try again, Hari?

Hari: Gandhinagar.

Teacher: Very Good!

Anu, what is the capital of Mizoram?

Anu: Dispur.

Teacher: Priya, do you want to try?

Priya: Aizawl.

Teacher: O K.

In this brief picture of a classroom discussion, Hari was told when his answer was wrong; was helped to discover the correct answer; and was praised when he offered the correct response. When Anu was wrong, the teacher, rather than staying with her, moved to Priya, who received just plain acceptance of her correct answer. Hari received the more specific teacher reaction and benefitted from a longer, more precise and intense educational interaction.

viii. Sex stereotyping in textbooks, instructional materials, media, curriculum, testing and counselling is still prevalent. Textbooks present an occupational and social picture of the out-

side world to children. Distorted or negative representations of the people who inhabit this world affect children's self-esteem. Males appear far more often than females in reading, mathematics, science, foreign language, social studies and other textbooks. Females are frequently depicted as passive and dependent.

Why should one be so critical of the female image in textbooks? One reason is that texts can lower girls' self-esteem. When girls see that women are not important, they realise that they are not important. Men's daring acts are shown, but women apparently took no part in them.

Textbooks also present a poor picture of school girls. Girls are rarely shown doing interesting things that boys are doing. While boys repair the motor, girls observe through a microscope. In fact, in some textbooks girls are portrayed as admiring boys for performing feats that are seemingly impossible for girls. Girls exposed to this image of themselves will scarcely grow up to be active, inquiring, challenging adults.

Textbooks do not just exhibit a sex-stereotyped role of women, they also show a portrayal that is grossly inaccurate. Texts do not even represent the reality of working women. It is desirable that texts present a favourable image of women and it is essential that they at least present an accurate picture.

ix. Inept and inadequate counselling in our schools can have far-reaching consequences. Although counsellors purport to treat girls' and boys' vocational aims equally, in practice they do not. Counsellors, both male and female, are biased against women entering "masculine" jobs. The less "masculine" the job is, the less biased are the counsellors against the women occupying this job. Different reasons are given to the girls stating why they could not enter these jobs. family reasons, working conditions, lack of geographical mobility, educational preparation, and so on.

These are but a few of the areas in a classroom where sex bias exists. Classroom sex

biases are not etched in stone and training can eliminate these patterns. There is an urgent need to remove sexism from the classroom and give girls the same educational encouragement and support that boys receive to make for equality in the workplace.

### Steps Teachers could Take to Reduce Sex Bias

The needs, challenges and possibilities of reducing sex bias involve teachers ridding themselves of bias, first. This involves teachers taking the following steps.

- i. Discovering elements within our culture which have contributed to the traditional view of women
- ii. Investigating the opinions that contemporary women hold of themselves and their place in the world of work.
- iii. Reading and discussing significant literature dealing with women, their traditional roles and their place in the world of work.
- iv. Participating in and observing situations in which women are found in roles other than traditional ones.
- v. Identifying several life patterns which might be followed by women and discussing the significance of these in connection with the personal development and family life of a woman.
- vi. Gathering information concerning vocational opportunities for women in various areas of work.

### Some Suggestions to Avoid Sex Inequities in the Classroom

#### *1. Eliminate Sex Bias in Classroom Interactions*

Teachers should be trained to give more effective and precise responses for all students.

Active students — of either sex — receiving precise feedback are more likely to achieve academically. It may be appropriate for teachers to encourage many of their girls to volunteer in class discussions more than they encourage boys to do so.

#### ii. *Promote Equitable Treatment in Traditionally Sex-stereotyped Courses*

Boys and girls should have an equal opportunity to enrol in all courses; they should not be sex-segregated within these classes. Teachers of newly sex-desegregated practical arts/workshop classes should be trained to recognise subtle forms of bias in themselves and in students. They should also be equipped to modify their behaviour, their language and the choice of curriculum available. For a start, teachers can eliminate assignments by sex in all job classes and student positions.

#### iii. *Eliminate Sex Stereotyping in Textbooks and Instructional Material*

Teachers can evaluate textbooks for sex bias before prescribing them for their classes. Educational films and other materials should be previewed before use.

Feminist literature should be included in school libraries and efforts made to secure instructional materials, including textbooks, which favourably portray women in non-traditional roles. Teachers of such subjects as English and social studies should be oriented to the whole area of vocational preparation for women. The unique contributions that these fields can make are needed in the total effort to improve the vocational lot of women—but making the contributions could enhance the relevance of the content for each field itself. For example, the communications problems of women at work, particularly as try to "make it" in traditionally male bastions of employment, would be provocative and mean-

ingful for the job-oriented girls. The fascinating literature on women, from that of Simone de Beauvoir to the writings of Sarojini Naidu and Amrita Pritam, to name only a few, could be reviewed and discussed in literature classes. A social studies class might consider the impact of an increasing number of women in the work force on the institution of the family, volunteer social services, personal service industry, and so on. Women's history might be included in social studies textbooks for the role identification of young girls and for the role models of concerned and responsible women in the political, social welfare and economic life of the nation.

#### iv. *Modify Attitudes to Sex Roles*

Teachers' beliefs of what is sex appropriate are impairing children's self-esteem and self-actualisation, particularly the self-actualisation of girls. The schools are setting the stage for children's adult behaviour, and if girls grow up to be less ambitious and less successful than boys, it is the school that we can turn to as the precursor of girls' failure. It is unclear what specific effect teachers' attitudes have on students regarding sex appropriate behaviour. It is obvious, however, that the teacher is an important role model for children and transmits values to them. It is for this reason that teachers must immediately analyse their attitudes and conduct toward sex-role stereotyping. All schools must rigorously examine themselves and conduct activities to eradicate these behaviours. These pursuits might include: consciousness raising sessions on the part of teachers encompassing reverse sex role playing, workshops on sexism; reviewing the number of boys and girls in school functions such as NSS traffic guides in important junctions; role-playing activities and discussions about being a boy or a girl.

In some instances, this question is being dealt with directly as part of the school cur-

riculum. Sweden, for example, has included in its civics, lessons and discussion about sex roles in society and the rights of women. Probably Sweden has made much progress in giving equal rights in society and in fostering acceptances of the view that the two sexes should share equally in tasks associated with running the house and looking after children. However, it is difficult to put across new views of sex roles, if the experience of everyday life at home and in the community counteracts these views. Judicious use of mass media would go a long way in gradually changing sex stereotyping of roles, for example, TV serials like "Udaan" and "Shakti".

v. A system of options in secondary school whereby girls do not have a chance to opt out of mathematics and sciences as they all too frequently tend to do, would help.

In the Soviet Union, the amount of options pupils can undertake during full-time schooling is strictly limited — less than 10% of the time-table. In the basic ten-year comprehensive school the distribution of this is .

maths/natural sciences — 29.8%

social studies/mother tongue/literary-artistic studies — 41.1%

introduction to socialist production and productive work — 10.6%

foreign language — 10.6%

sports — 7.9%

In the top classes, only two or three periods a week, out of 34-35 periods, are given to optional studies. Similarly, in Classes XI and XII, for those who continue in full-time secondary schooling, 75 per cent of the time-table is given to the common curriculum, which includes mathematics, physics, chemistry, biology, history, geography, civics and sports as well as German, Russian and a second modern language. In conditions like these, girls do not have a chance to opt out of mathematics and sciences as they all too frequently tend to do when options are offered. Girls also have to engage in the same practical productive work

with machines as the boys do. Hence they must enter the labour market later with at least a basic grounding in skills, which, in other systems, would be regarded as sex differentiated. Boys must study languages as well as sciences. The nation's rapidly expanding technology is opening broad vistas of employment possibilities, both at the technical and professional levels.

One must indeed recognise the possible importance of a compulsory common curriculum with regard to the learning of languages as well as mathematics and science. In our schools, there is the tendency to think of foreign languages as more the preserve of girls. It might, therefore, be a good thing if boys' avoidance of this subject could be reduced. A common curriculum for most school education does not necessarily eliminate sex bias in subject choice. Yet it ensures that both boys and girls have achieved a basic competence in the full range of subjects before embarking on options.

vi. Schools must provide more opportunities for girls to participate in programmes of competitive team sports that are comparable to the opportunities for boys. Outstanding girl athletes must not be excluded from competition as members of male teams in sports. If a school operates teams for boys and girls, it should provide equal facilities like paid coaches, uniforms, equipment and transportation to games.

vii. Counselling should form a part of school life.

Many counsellors lack information and sensitivity to changing life patterns of women and to widening vocational and higher educational opportunities resulting from changing attitudes (Bingham and Howe, 1973).

Women and girls have been consistently channeled into lower paying jobs, in part, because of the expectations of the community, but also in part because of the preparation they have received in high school. Girls and

women desperately need opportunities to improve their employment positions and to move into new careers. The school should become a significant force for increasing the earning ability and status of women and girls.

This implies that all students be counselled to consider a variety of career opportunities, not only those traditionally entered by persons of their own sex. Job placement practices should assure students of employment opportunities without restriction because of sex.

Counsellors must be retrained with an increased sensitivity to the scope of women's options. Counsellors should be in the forefront of fighting school sexism.

## Conclusion

This paper merely establishes the subtle and often blatant discrimination against girls in schools. Often the bias is not perceived by the girls themselves — nor are they perceived

by the parents or the teachers themselves.

Schools heavily contribute to the support of sex bias in society. School structure forces students into modes of behaviour that are sex-typed because students conform to what they believe to be socially acceptable behaviour as represented by school practices. The perpetration of this system is clearly not only unjust to girls and women, but it also implies a great loss of talent.

Out of the efforts to improve the lot of women may come a new concept of what it means to be a mature, fully functioning woman. Such a woman will be a partner to men, neither subservient nor threatening and "emasculating"; feminine in the sense of womanly rather than helpless and childlike; more interesting to her husband and children, and fully responsible in her roles as homemaker, employed person, and citizen. In a satisfying, contributing, wholly "human" synthesis of her various roles she will find her identity.

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# Various Elements of Distance Education : Reactions of the Distant Learners

(DR) KALPLATA PANDEY

*Lecturer, Faculty of Education, Kashi Vidyapith, Varanasi*

**I**N order to shift the education system from the teacher-centred to the learner-centred, the concept of distance education system has been evolved. It is "education which either does not imply the physical presence of the teacher appointed to dispense it in the place where it is received, or in which the teacher is present only on occasions or for selected tasks." Keegan (1986) finds that distance education has the following important characteristics :— (1) The quasi-permanent separation of the teacher and the learner throughout the length of the learning process, this distinguishes it from conventional face-to-face education, (2) The influence of an educational organisation both in planning and preparation of learning materials and in the provision of student support services; this

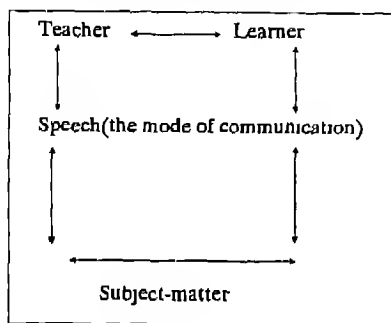
distinguishes it from private study and teach-yourself-programmes, (3) The use of technical media, print, audio, video or computer, to unite teachers and learners and carry the content of the course, (4) The provision of two-way communication so that the student may benefit from or even initiate a dialogue; this distinguishes it from other uses of technology in education, (5) The quasi-permanent absence of a learning group throughout the length of the learning process so that people are usually taught as individuals and not in groups, with the possibility of occasional meetings for both didactic and socialisation purposes.

The characteristics given by Keegan are the main and essential features of distance education. The separation of the teacher and



the learner emphasizes that the learner has to learn autonomously. The advantages of autonomous learning, as Wedemeyer has highlighted, are that the students will be able to work on their own pace, choose their educational goals and go about learning in their own way utilizing their resources to the maximum.

Wedemeyer has summed up this description graphically as follows:



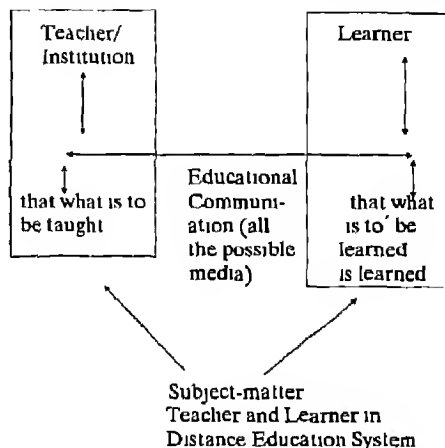
Formal Classroom Situation

In the conventional system the teacher and the learner have face-to-face interaction in the classrooms and with the Word of mouth, the teacher teaches the subject to the learner. Contrary to this, in the distance education system, the teacher and the learner is separated throughout the learning process. The link between them is made through the print and non-print media. It is obvious that in distance education the whole system is learner-centred and is providing full and golden opportunity to learn autonomously. This autonomy makes the learner self-reliant, confident and an intelligent citizen but at the same time leaving the learner alone to fight with his/her own problems.

Therefore, the learner, in the absence of the teacher, the peer group and the classroom, has

to learn according to his own pace, facilities and capabilities and internal motivation. The idea behind it is that if we accept education to be a life-long activity, an activity that constantly engages the learners in updating their information and skills, it has to be learner-centred and the learner should be given full autonomy.

The potential clientele of this education system is a group of learners who are mostly



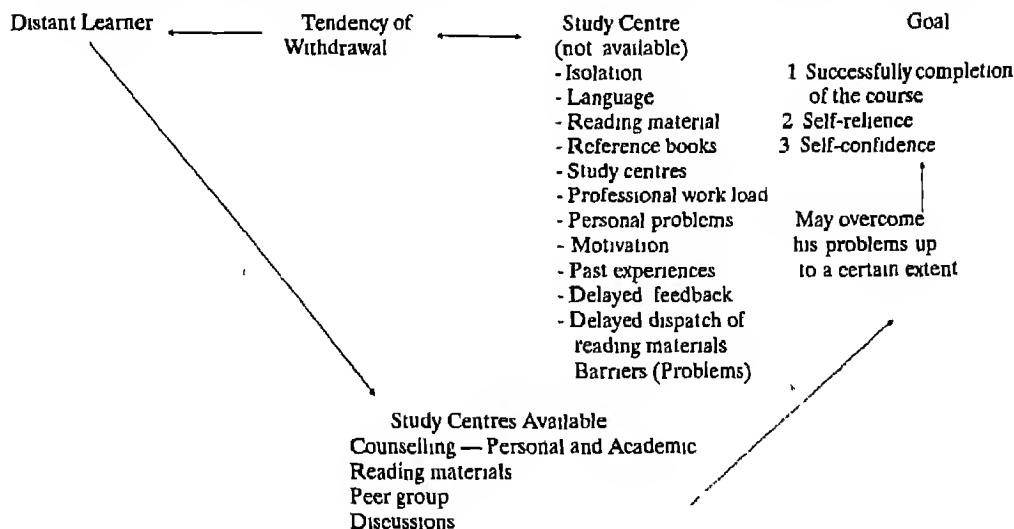
educationally disadvantaged and were not in a position to continue their studies due to geographical, personal, economic, professional, social and other situational barriers. Though it is true that the above-mentioned group is comparatively more mature, has more internalised motivation and belongs to a more widely ranged group, age-wise and experience-wise, and they can make themselves habitual in this self-learning system. But there is another side of the coin also.

The distance learner, as described above, also has to face the problem of isolation. They have to learn by the word of hand, i.e. with the help of reading materials provided to them by team of experts, who have to prepare the course reading materials for such a

heterogeneous group having different levels of IO, age, motivations, expectations and past experiences. Again, the learner has to wait at least 15 days to solve even a minor problem of his own. If he does not have study centres in his own city, then this problem becomes more expensive and tiring. Walter Perry (1987), the first vice-chancellor of UKOU, has rightly described the condition of the distant learner by writing that "our student must plan his whole life round his course. He must try not to miss the broadcasts and they may therefore determine his social activities on at least two days a week. He must submit his assignments on time, which means that he must regularly devote an adequate amount of time in reading

does not have any such problem, his life is organised for him"

All the above-mentioned problems are also being faced by the distant learners here. Inservice learners have to face other types of problems such as changing in working hours, more work load in the departments, and other duties related with the profession. Delay in dispatching course materials and demand of submitting assignments within the stipulated time, error committed by university in writing the name and address, delay in sending back the feedback, all such problems can have devastating effects on their work. The condition of the distant learner can be easily understood by the following description :



and preparing for them; even holidays or family or business crises must not be allowed to upset that regularity. He may feel it necessary to attend his local study centre for tutorials as frequently as once a week, and that may involve him in a complicated, lengthy and costly journey. All this organisation and planning is itself a considerable demand on his time, his ingenuity, his tact, his patience. We should never forget that the full-time student

On the basis of the above-mentioned description, it seems that the learner has to fight hard to keep his motivation positive in order to overcome the barriers. If he overcomes the barriers with the help of his own efforts and the help of the student support services, then he can complete his course. Otherwise the barriers of the problems compell him to leave the course and become a dropout.

The problem of dropouts also exists in the distance education system and is causing anxiety among the authorities of the IGNOU. One of the most ambitious courses run by this university is diploma in distance education. This course has so many specialities, one of which is that this course is being run by only two universities in the world. Even the UKOU does not have this course. Being the student of its first batch and the consellor of diploma in distance education for two academic years, the researcher is personally anxious about the dropout rate. In the 1988-89 session, 104 students were enrolled for the diploma in distance education. Thirty-two of them had submitted their first two assignments and at the end of the session only 17 students were found eligible for the examination on the basis of their total assignments submitted. In this manner only 16.34 per cent of the students had completed the course and the remaining 83.66 per cent dropped out. In the 1989-90 session, 32 students were enrolled of them 20 students submitted their first two assignments. At present, only about twelve students have submitted their assignments up till now.

This situation led the researcher to find out the problems of the learners through their reactions to certain elements of distance education. In order to know their problems, a questionnaire schedule was used which contained statements related with five elements: (1) learner's concern (the statements were based on isolation, freedom, motivational aspect, personal and professional problems; (2) reading materials (language used in reading material, style of writing, contents, sentence framing and medium of word of hand); (3) assignments (quality of questions asked, response returning rules, quantity, etc); (4) attendance (quality of counselling, study centres, frequency of counselling), (5) future prospects (professional usefulness, economic gains,

etc.) The view about the statement had to be given on the five-point scale from strongly agree, to agree, undecided, disagree and strongly disagree.

All the distant learners of the present batch were given the schedule to fill it. Out of 32 learners attached to this study centre, only 16 had returned the completed sheets. Eight of them were dropouts as they had not submitted the assignments, and another eight were the potential learners, the learners who were still continuing their study. In this manner 50 per cent of the whole sample population was taken into consideration.

The scoring was done with the help of the scoring key. The dropouts and potential learners were analysed separately on the basis of their scores on each statement under the five elements mentioned above. After counting the whole scores, mean of the scores was found out by dividing the scores from the number of the students.

After analysing the data obtained from the 13 statements related with the learners' concern, it was found that both the dropouts and the potential learners agreed that personal problems were big barriers in self-learning, and that in the absence of peer group, the students did not have the feeling of healthy competition. The dropouts showed disagreement with the view that the distant learner felt isolation. The dropouts disagreed regarding the education system being well-balanced and the students themselves had no interest in it. Regarding the age factor, the potential learners felt that age had no bearing upon learning on the part of the learner. The dropouts felt that lengthy sentences in the reading materials broke concentration on the part of the learner. In the rest of the statements, both the groups could not take any decision. These statements were regarding the language used in preparing the reading materials, freedom from time and

space, economic gains and studying and doing job at the same time.

Regarding the quality and presentation of the reading materials, the dropouts as well as the potential learners both had common agreement that the language used in the course materials was very tough.

The dropouts strongly recommended that reference as well as textbooks should be made available in Hindi and other regional languages. The potential learners also agreed with this view. The dropouts felt that the medium of instruction being English, it was the main cause of dropout. Lengthy sentences in the reading materials also created problems in learning.

When the data related with the assignments were analysed, it was found that both the potential learners as well as the dropouts agreed with the view that the rules related with the submission of assignments should be more flexible and the knowledge of the result or feedback of assignments should reach the geographically remote areas at the earliest possible, because these are one of the main causes of the dropouts. The dropouts feel that the quantity of assignments as well as the time allocated for completing the assignments also lead to dropouts.

Regarding attendance and counselling, it is strongly felt by the potential learners as well as the dropouts that there is scarcity of study centres in many places. Both of them also agreed with the view that the standard of counselling should be increased. Again, both types of learners strongly agreed that if the reading material was prepared in Hindi and other regional languages, then the students would be more benefitted from this course.

When the data related with the future prospects was analysed, it was found that both the groups of learners strongly agreed with the view that if the course was made professionally useful, then the dropout rate of the students

would be minimised.

Beside this statistical analysis, the researcher also interviewed the learners to know their views regarding the cause of dropout as well as the problems that were being faced by them. The following suggestions were given by the learners:

1. Study centres should be opened in each and every district or nearby places, because it becomes very tiring and costly to reach the counselling centres located in distant places.
2. Contact programme/counselling should also be scheduled on working days.
3. Reading materials should be prepared in Hindi and other regional languages also.
4. There should be no hard and fast rules regarding the time for submission of assignment. Learners should be given freedom to submit all the assignments within an academic year without the bars of time stipulated for each assignment submission.
5. The reading materials should be made available for most of the time for the learners and the distance of the study centre should not be beyond the easy reach of the learner.
6. There is strong need to redefine the categories of students, say as part-time and full-time and the employed should be treated as part-time students and some concessions and flexibility regarding the submission of assignments should be granted to them.
7. The medium of instruction in distance education should be Hindi. Due to this very problem many students of Hindi-speaking area have been compelled to leave the course.
8. Atleast 25 per cent of the attendance should be made compulsory by the

study centres in order to maintain the motivation on the part of the learner, on the one hand, and for the healthy interaction with the peer group, on the other.

9. In order to check and avoid duplication, cheating, and use of unfair methods of preparing assignments, attendance is essential also on the part of the counsellor
10. The language used in reading materials should be more simple, declarative and directional. Lengthy sentences should be avoided as they break the concentration of the learners.
11. The number of counsellors should be increased in order to provide quick feedback to the students.
12. The evaluated assignments should also be displayed through print and non-print media in order to encourage the students
13. The number of study centres within a city should be increased.
14. The persons who have successfully completed the diploma course should be invited to the nearby study centres as resource persons. This arrangement should be done by the university.
15. Those learners who have successfully completed the diploma course should be encouraged by promoting them in their respective jobs or by providing them economic benefits.
16. The language and style of writing in reading materials should not be the carbon copy of foreign materials. It should be written in the manner which is best suited to the Indian students.
17. This course should be made employment-oriented.

On the basis of the above-mentioned analysis and the suggestions given by the learners, it can be concluded that the main

causes of dropout are medium of word of hand, i.e. English, language and presentation style of reading materials, restriction of time for the submission of assignments, scarcity of reading materials in Hindi and other regional languages and absence of study centres in the nearby places. It is also clear that in order to minimise the dropout rate, the course should be made job-oriented and should have positive future prospects.

As an academic counsellor of the only activated centre of Uttar Pradesh for diploma in distance education, the researcher feels that the main problem that is being faced by most of the students in Uttar Pradesh is the medium of word of hand, i.e. English and the presentation style of the reading material. Secondly, most of the inservice learners do not give more importance to this course because they feel that this course is not going to be economically beneficial to them or they are not going to get promotion after the successful completion of this course. Therefore, the present course should be made professionally useful by absorbing the diploma holders in study centres on part time (if they are inservice) or full-time (if they are unemployed) basis. Again, the reference materials should be translated into Hindi and other regional languages on the basis of the strength of the students. It is also suggested that instead of calling the students at study centres, there should be facility of tele-tutoring by making a network of telephone lines. Prof Bakhshish Singh, one of the founders of distance education in India, has rightly said that "Telephone has great potential for providing two-way interactor between the learner and the teacher, as also among the learners themselves. It is particularly useful when an institution has to deal with students scattered over vast areas and in countries where there is shortage of specialists... Tele-tutoring and

tele-conferencing can be developed into a very useful students support service in the distance education system."

If it is not possible to open study centres in each and every district, then mobile learning centres or local study cells/circles (comprising of five to seven learners belonging to the same city) can be organised.

The present study centres should be equipped with a rich library, audio and video equipment, telephone and listening lab facilities.

The location of the study centres should be so decided that they are not beyond the easy reach of the learners. For encouraging the formation of study circles/cells, the students should be provided the addresses of the learners belonging to the same city and having the same course. If required, the study centre or regional centre may give help in establishing the study circle. This circle will be very beneficial to the peer group interaction as well as healthy competition. They may even solve their minor problems through group discussion without coming to the study centre.

In order to avoid cheating and use of unfair means to some extent, a handwriting sample of each student should be kept in the record of the study centre and the learners should not be allowed to send their assignment responses in the form of typed pages.

As we all know, the distant learner is quite different from the conventional learner, as

he/she has to face a lot of problems related with age, family, profession, learning capacity, study skills, memory, motivation and past experiences. To make them active, self-motivated and self-reliant, we have to think sympathetically as well as logically about isolation and difficulties he/she is facing in self-learning. We have standardised course materials and have managed a very good team of academicians and experts to plan and administer the whole system very efficiently. But still we have to prepare our learner to utilise successfully these facilities provided by the authorities and planners of this prestigious education system. We should not forget the truth that after studying through the conventional system of education for a long time, the learner has to make tremendous effort to decondition himself from the conventional teacher-centred education system to make himself tuned with this new learner-centred distance education system. In this above-mentioned process of deconditioning from the older one to the conditioning with newer one, the learner deserves special attention, sympathy and reasonable but quick solution of his problems. By doing this only can we maintain balance among the three poles of education viz. the teacher, the subject matter (reading materials) and the learner which is highly essential for the success and wider acceptance of this new system of education.

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# Principals' Administrative Effectiveness as Related to their Value Pattern

(DR) G. KUMAR

(DR) B. SHARMA

*Hindu College, Moradabad*

**A**DMINISTRATIVE effectiveness is not an independent phenomenon; rather, a number of factors contribute to it. In the past, several research studies have been conducted to find out the factors associated with it. Many studies since 1950 clearly indicate that personality traits, qualities, competencies and several other factors are important determinants of principals' administrative effectiveness. These factors are not only the factors that contribute to the effectiveness of the principals. There is a lack of knowledge as regards to the contribution of value pattern to principals' effectiveness. Each person has its own value pattern, so is the case with teaching professionals particularly principals.

Values are considered as potent determinants of human behaviour. They make

human behaviour patterned and help to make sense out of discrete pieces of human behaviour which otherwise do not have any connection (Williams, 1951). Stein (1967) believes that values determine the choice man makes and the ends he lives by. What is considered good and what is evil, what is right or wrong, beautiful or ugly are some of the considerations determining the values. Allport (1956) defines values as dominant interest in personality. All the basic interests and motives in personality have been divided into six categories, viz. theoretical, economic, aesthetic, social, political and religious.

On the basis of review of literature Sharma (1985) concluded that there exists a sparsity of research where educational administrators' effectiveness has not been studied in relation

to the value pattern of principals. The present study was undertaken to find out differences between more and less effective educational administrators in relation to their value pattern. It also aimed to find out the significance of difference between male and female principals working in urban and rural areas.

### Sample

The sample consisted of 101 principals of High Schools and Intermediate Colleges of Moradabad Commissionery and their administrative effectiveness was perceived by 1010 teachers. The sample was drawn from both male and female institutions located in urban and rural areas.

### Tools

In order to measure principals' administrative effectiveness, Principals Administrative Effectiveness Scale was used. Developed by Sharma and Kumar (1982), the scale is a highly reliable and valid measure of effectiveness. The test retest reliability coefficients of this test is 0.85 which may be considered satisfactory for the purpose. The value pattern of principals was measured by a study of values developed by Ojha (1970). It has been used in many studies in India

### Objectives

The specific objectives of the study were as follows:

1. To categorise more effective and less effective educational administrators on the basis of principals' administrative effectiveness score
2. To compare more and less effective educational administrators in relation to their value pattern.
3. To compare educational administrators, sex-wise and location-wise, in relation to their value pattern.

### Results and Interpretations

The scores obtained on the Administrative Effectiveness Scale were arranged in descending order, and on the basis of the median point two groups of more and less effective principals were formed. Above the medium point the subjects were treated as more effective and below the median point as less effective.

In order to test the significant difference between more and less effective principals in relation to value pattern means, standard deviations and 't' ratios were calculated and the results obtained are given in Table 1.

For 99 df. t's of 1.98 and 2.63 are significant at .05 and .01 levels, respectively.

The results point out that out of six values

TABLE 1  
Significance of Difference Between More and Less Effective Educational Administrators for Values

Variables	More Effective Group N=50		Less Effective Group N=51		t' Value	Level of Significance
	Mean	SD	Mean	SD		
1 Theoretical	44.18	3.97	39.54	6.20	4.46	P 0.01
2 Economic	39.90	5.65	37.64	7.20	1.75	N.S.
3. Aesthetic	29.18	5.36	29.01	4.83	0.16	N.S.
4 Social	42.62	5.85	42.21	5.29	0.36	N.S.
5 Political	43.92	5.37	40.07	6.65	3.19	P 0.01
6. Religious	36.18	10.05	41.90	9.97	-2.90	P 0.01



three 't' ratios are significant at .01 level. The means for the remaining two values, Aesthetic and Social, are almost equal, while in the case

In order to test the difference between male and female educational administrators, a comparison has been made in relation to value pat-

TABLE 2  
Significance of Difference between Male and Female Educational Administrators in Relation to Value Pattern

S.No.	Variables	Male Administrator N=73		Female Administrator N=28		't' Value	Level of Significance
		Mean	SD	Mean	SD		
1	Theoretical	41.93	5.54	41.60	6.15	0.26	N.S.
2	Economic	39.42	7.13	37.03	4.34	2.06	0.05
3	Aesthetic	28.91	4.83	29.57	6.73	-0.58	Not significant
4	Social Value	42.28	4.96	42.75	6.94	-0.37	"
5	Political	41.47	6.33	43.28	6.22	-1.29	"
6	Religious	38.79	11.26	39.78	7.20	-0.43	"

of Economic value the higher mean 39.90 (5.65) is in favour of more effective group of administrators in comparison to the mean 37.64 (7.20) of less effective educational administrators, but the 't' ratio is not significant. In the case of Theoretical value the means and SDs of more and less effective groups are 44.18(3.97) and 39.54 (6.20), respectively. The higher mean is in favour of more effective group. It indicates that more effective principals are more critical and rational. The remaining two values, i.e. Political and Religious, also have significant 't' ratios and have mean and SD 43.92 (5.37), 40.07 (6.65) and 36.18 (10.05), 41.90 (9.97), respectively for more and less effective principals. In the case of Political value more effective principals are interested in power and influence. But in the case of Religious value the results show that the mental structure of less effective principals is presently directed to the criterion of the highest and absolutely satisfying value experience. Sergiovanni and Carver (1980) are also of the view that the Political value system relates to possession of control and influence, and includes prestige, rank, and social position as means used to achieve this control and influence.

tern and the results are given in Table 2.

The results as shown in Table 2 bear no significant difference for any of the six values, except Economic value, with regard to sex. The mean difference of 2.39 for Economic value of male and female administrators was found significant at .05 level. This shows that male principals are more interested in what is useful and practical. Actually, the Economic attitude frequently comes into conflict with other values.

In order to test the location-wise difference between urban and rural educational administrators in relation to value pattern, the results are shown in Table 3.

Table 3 indicates that all the values, except Theoretical value, have almost the same means for both the groups, i.e. urban and rural. The mean score in the case of Theoretical value is higher for the urban group (43.29). The 't' ratio 3.37 is also significant at .01 level. On the basis of the findings it can be concluded that in the democratic set-up of our country urban population has more means and facilities as regards education, entertainment and technological advancement. It may be because of these benefits that urban administrators have more

TABLE 3  
Significance of Difference between Urban and Rural Educational Administrators in Relation to Value Orientation

Variables	Urban Group N=62		Rural Group N=39		't' Value	Level of Significance
	Mean	SD	Mean	SD		
Theoretical	43.29	5.36	39.53	5.49	3.37	P 0.01
Economic	39.50	6.27	37.58	6.88	1.40	Not significant
Aesthetic	29.77	5.44	28.02	4.28	1.70	"
Social Value	41.79	5.90	43.41	4.85	-1.43	"
Political	42.93	5.81	40.46	6.87	1.94	"
Religious	39.29	9.84	38.72	11.05	0.27	"

Theoretical value in comparison to rural administrators.

### Conclusions

The overall conclusions of this study are that educational administrators strong in Theoretical and Political values may be quite experimental in their views as they engage in action research and express interest in developing innovative approaches in organiz-

ing schools and training structure, which lead them towards more effectiveness. These values are essential to school decision-making. Effective principals are critical and rational in their thinking and are interested in power and influence. They take interest in teaching and academic activities. On the basis of our research findings it can be concluded that principals' administrative effectiveness is directly and significantly related with Theoretical and Political values.

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# Science and Mathematics at the High School Level : A Diagnostic Test in Algebra as a Predictor of Success

(DR) NARESH CHANDRA SRIVASTAVA

*Lecturer, Raja Harpal Singh Degree College, Singrauli, Jabalpur, Uttar Pradesh*

**I**N the field of education and psychology prediction is an important technique. If we are able to measure the relationship between the accomplishment of a student in a particular test at eighth class and his success in the high school examination, we may tell tentatively the prognostic value of that test. For this purpose a number of tests—psychological as well as scholastic achievement tests—have been used as predictors to gauge the success of the students. Amos (1931) found that intelligence test alone could make accurate forecast of secondary school success and not schools subjects. Acharya and Mahalanobis (1937-38) observed that there was a close association between the marks of the college test examinations and the university results. Son-

nekus (1959) proved that the tests standardised for his research were better predictors of academic success than intelligence, ability, interest and personality tests. Rastogi (1964) found that relationship between interest and achievement ( $r = .5$ ), between interest and achievement in Science ( $r = .37$ ), between intelligence and interest in English were positive. Srivastava (1980) concluded that in most of the cases her predictors proved to be positively highly correlated. Murphy (1981) studied the relationship between both G.E.O.O. level grades and teachers' estimates of A level grades, and the actual moderate level of correlations were obtained in both cases, although the teachers' estimates appeared to be slightly better predictors of A

level grades. The findings of these and many other researches in the field made the researcher ponder if instead of taking a psychological test (intelligence test, attitude test, interest test, personality test, etc.) or an achievement test (Hindi, English, Science, Mathematics, etc.) as predictor of scholastic achievement, he took a diagnostic test in Algebra as a predictor, would it serve the purpose of forecasting the success at the high school examination in Science and Mathematics?

### Objectives

The study was carried out, keeping the following objectives in view:

- (i) To determine the degree of relation between the variables selected for the study.
- (ii) To ascertain the amount of regression coefficients for the predictor.
- (iii) To compare the degree of relation in the case of rural and urban, male and female students.

### Method and Procedure

#### Sample

The researcher intended to cover representative districts of the entire plain area of Uttar Pradesh. Thus 955 students of Class VIII from three western districts (Meerut, Jhansi and Lucknow) and three eastern districts (Allahabad, Varanasi and Gorakhpur) were selected, keeping in view the scientific rigour of random sampling.

### Measuring Instruments

The following measuring instruments were used :

#### (i) Bureau of Psychology Test-23

This test is primarily a diagnostic test in Algebra for Class VIII but its constant use reveals that it could also be used for assessing achievement in Algebra. Dr H.L. Sharma, the author, says, "It is evident, therefore, that the Diagnostic Test in Algebra can also very well form a part of the battery of tests for selection of students for the science stream." It is expected that students showing better performance in this test would also fair well in the High School Examination especially in Mathematics and Science. As such this test, though primarily a diagnostic test, could also be used for prediction of success at the high school examination in Mathematics and Science. Its reliability and validity are .97 and .53, respectively.

#### (ii) Marks in Mathematics and Science at the High School Examination

The Bureau of Psychology Test-23 (a diagnostic test in Algebra) was given to 955 pupils of Class VIII and their scores were obtained. These scores were used as predictors. The researcher had to wait for two years till the Class VIII students, who were tested, appeared at the high school examination. Their marks in Mathematics and Science were taken from the cross lists prepared by the Board of High School and Intermediate Education, (U.P.), Allahabad. These marks were treated as a criterion.

### Results and Discussion

The distribution of scores for the students of three groups, i.e. urban girls, urban boys and rural boys is presented in the following table. The values of calculated mean, SD and Indices of Kurtosis and Skewness are also given in the table.

The mean is falling far below the central point (i.e. 50), indicating that majority of stu-

subject. The standard deviation being 22.1 shows that there is a wide gap between the

TABLE 1  
Distribution of Scores in BPT-23

Value	Urban Girls	Urban Boys	Rural Boys	Total	
Mean	37.38	40.25	40.16	37.97	Skewness=3.2
SD	9.17	17.44	16.92	15.88	Kurtosis=.12
N	159	393	93	645	

dents showed poor performance in the test. The students selected for the sample appear to be weak in Algebra. The ratio of mean and SD is 2.5:1. It shows that there is a wide gap between the lowest and the highest scores. The positive skewness reveals that mean is falling below the median as the majority of the scores are massed on the left side of the distribution and spread out gradually toward the high or right end. Since the Kurtosis is .12, the distribution seems to be leptokurtic or more peaked than the normal. Algebra requires

lowest and the highest scores. The ratio of mean and SD is 2.5:1. The index of skewness is .4 which indicates that distribution is slightly skewed toward the left. The index of kurtosis is .50. It shows that the frequency distribution curve is platykurtic.

The mean value and SD came to be 51.62 and 16.46, respectively. The mean is slightly above the central point (i.e. 50) and the ratio between the mean and the SD is about 3.1. The indices of skewness and kurtosis came to be -.14 and .3, respectively. The mean value in-

TABLE 2  
Distribution of High School Scores in Mathematics

Value	Urban Girls	Urban Boys	Rural Boys	Total	
Mean	57.38	56.51	54.31	56.05	Skewness= .497
SD	16.54	22.79	21.75	22.1	Kurtosis= .5
N	20	389	93	502	

TABLE 3  
Distribution of High School Scores in Science

Value	Urban Girls	Urban Boys	Rural Boys	Total	
Mean	51.47	51.95	51.50	51.62	Skewness= -.14
SD	13.66	16.56	15.45	16.46	Kurtosis= .3
N	17	258	57	332	

ability to manipulate symbols, etc. The students appear to be less familiar with the rules.

The mean value being 56.05 speaks clearly of the good performance of students in this

indicates that the performance of the students in this test is satisfactory. The SD reveals that there is variability in the scores. Since the skewness is negative (-.14), it indicates that a

good number of students have secured better marks. The index of Kurtosis (.30) tells that the curve is slightly platykurtic.

The above table reveals that the scores in BPT-23 are insignificantly correlated with the

This also shows that it is due to the common factors, i.e. abstract reasoning, manipulation of numbers and words, involved in them.

In the light of the Table 5 it appears that BPT-23 shows very high regression coeffi-

TABLE 4  
Correlation between Scores in BPT-23 and Scores in High School Mathematics and Science

Value	Urban Girls	Urban Boys	Rural Boys
Correlation between BPT-23 at Class VIII and Mathematics at High School	0.04	0.64	.70
Correlation between BPT-23 at Class VIII and Science at High School	0.41	0.63	.70
N	20	389	93

marks in Mathematics in the case of urban girls ( $r = +.04$ ). The reason is that girls are not motivated and encouraged to learn Mathematics in our society. They are supposed to learn music, Home Science, etc. This negative attitude of guardians as well as of teachers discourages girls to learn the subject but its cor-

ponents in the case of urban and rural boys so far as Mathematics is concerned. As such marks in Mathematics at the high school examination can be predicted successfully from the scores in BPT-23 administered two years earlier in Class VIII. Similarly, the same test shows remarkable and significant regression

TABLE 5  
Regression Coefficients Calculated from the Scores of Urban Boys and Rural Girls

S.N.	Dependent Variable	Independent Variable	Regression Coefficient in the case of Urban Boys	Regression Coefficient in the case of Rural Boys
1	Mathematics	BPT-23	.6347	.6309
2	Science	BPT-23	.4019	.3027

relation in the case of urban boys and rural boys (.64 and .70, respectively) is very high which speaks of the common components like numerical ability, manipulation of symbols, deduction and induction of rules and principles present in them.

Similarly, the scores in BPT-23 are highly correlated with the marks of Science in the case of urban girls ( $r = .41$ ) and very highly correlated with the marks in Science in the case of urban boys ( $r = .63$ ) and rural boys ( $r = .70$ ).

weight against Science. Thus the scores in Science at the high school examination can also be predicted on the basis of the scores in BPT-23.

### Conclusion

It was observed that the majority of students showed poor performance in BPT-23. The scores of urban girls in this test given at

Class VIII and the scores in Mathematics at the high school examination were found to be insignificantly correlated whereas the scores of urban girls in this test and the marks in science were quite significantly correlated. In the same way the scores of BPT-23 administered at Class VIII on rural and urban

boys had very high correlations with the marks in Science obtained at the high school examination. The values of regression coefficients also revealed that BPT-23 could be reliably used as a predictor for estimating the achievement in Mathematics and Science at the high school examination.

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## Book Reviews

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### **Handbook of Pupil Evaluation**

Pritam Singh, Allied Publishers Ltd., New Delhi, 1989, pp. 806, Rs 180.00

**I**N the last three decades there has been significant development in the area of pupil evaluation, in the context of Indian situation. For a classroom teacher, pupil-teacher and teacher-educator it is essential to know all those concepts which have emerged as a result of this development. There is not a single book which has tried to clarify all these concepts at one place. The present book, which is an outcome of the author's long experience in the area of testing, evaluation and examination reform, is an effort in this direction.

The book comprises of nineteen chapters. The first chapter deals with the development of examination with specific reference to India, reflecting a trend towards precision and comprehensiveness. The author has tried to make the readers aware of the contemporary concepts in the field of educational evaluation in the second chapter and in the next chapter,

he has dealt with the statistical concepts which a teacher will have to deal with in pupil evaluation. The fourth chapter discusses the formulation, derivation, specification and statement of instructional objectives to make evaluation objective-based. The author wants to dispel some of the misconceptions in modern pupil evaluation in the light of the teaching-learning process, to make it total school concept.

While the evaluation steps involving information gathering, judgement forming and decision making have been dealt with in the sixth chapter, the tools and techniques, which form the crucial part of this book, have been discussed in the following chapter. The next four chapters describe in detail the characteristics of a question and the various types of questions being used in pupil evaluation. These chapters have well-illustrated ex-



amples, testing different abilities. Chapter twelve mentions the qualities of a good measuring instrument, viz. reliability, validity and usability, followed by a chapter clarifying the concept of unit testing as a diagnostic technique for use in the classroom. The next three chapters are devoted to different aspects of paper setting, viz. setting, moderation and analysis of question papers

Chapter seventeen makes the reader aware of the latest trend in educational evaluation with specific reference to school education. The penultimate chapter is of informative nature and describes the role of evaluation, as envisaged in the National Policy of Education, 1986. The last chapter on Emerging Demands on Today's Evaluators, identifies the priority areas and emerging trends in the form of in-

dicators like the need for diagnostic testing, question banking, criterion referenced testing, continuous comprehensive evaluation, scaling and grading, etc. which, of course, have not been discussed in detail.

The language used by the author is simple and all the technical terms used have been explained. The chapter on Basic Statistical Concepts in Measurement should have been left out, as a number of books deal with it. The book is quite useful for teachers and teacher-educators. For pupil-teachers the book is useful only for those who have opted for Educational Evaluation as an optional subject for specialization. For educational researchers, this book will provide a lot of material, which is not easily available elsewhere.

T. K. BANSAL

### **Educating the Indian Elite**

R.P. Singh, Sterling Publishers Private Limited, New Delhi, 1989, pp. 117, Rs 125.00

**J**Dancy and A. De Souza have written about Public schools in the sixties and the seventies, respectively. But Professor R.P. Singh, the author of the book under review, presents the most recent and comprehensive picture of Public schools in India. He is of the opinion that English-medium Public schools are dominating the educational scene in the country in upper and middle class society, irrespective of religion and caste.

The book has been divided into five chapters. The first chapter starts with the introduction and the historical background of Public schools. The second chapter traces the origin

of Public schools in British tradition. The third gives a detailed account of their clientele. In the fourth chapter their contribution to mass education versus nurturing excellence is debated. Arguments are well-presented. Some favour their continuance and regard them as prototype of excellence in Education. Others take them as hindrance in the implementation of the mass education programme due to their expensive nature. In the last chapter their future is discussed. A comparative study of different types of schools is suggested to decide their usefulness for Indian society.

The book contains appendices which give

additional information about Public schools. These are: list of Indian Public schools, rules for admission to the membership of IPSC, Ministry of Defence scholarship scheme, agreement form and surety bond to be executed by parents of the students. The book provides an exhaustive bibliography and index at the end.

There is a logical sequence in presenting the content. The language is very lucid and impressive. The book is recommended for students, teachers, parents and administrators. It will serve as a valuable addition to all educational libraries.

Essentially a readable work.

NARENDRA SINGH

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